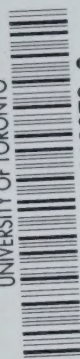


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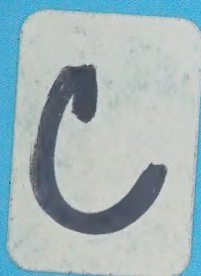
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No. 1

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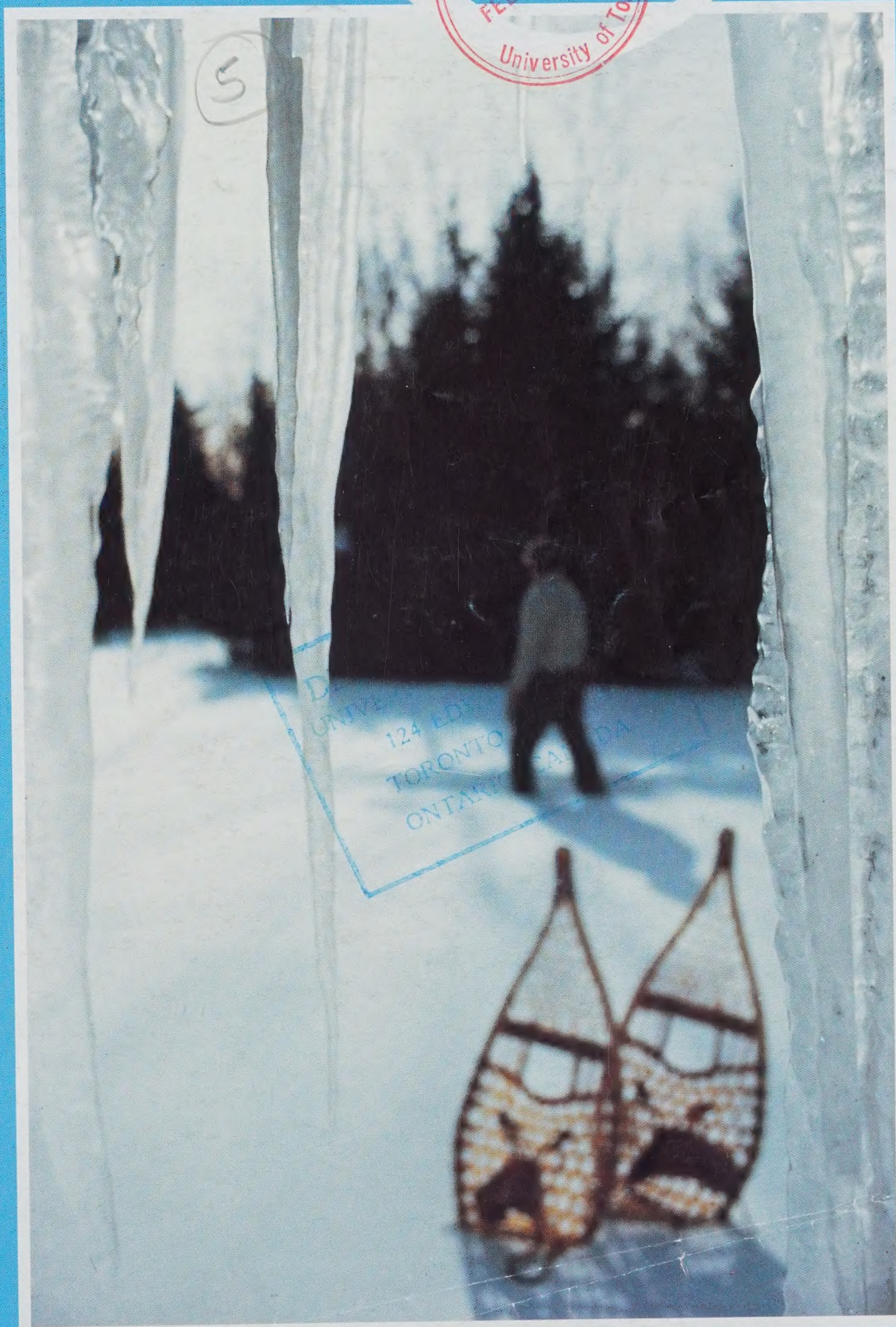


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CDA MISSION STATEMENT

The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

In cooperation with the provincial dental associations and affiliated organizations, CDA offers services, in both official languages, intended to support and advise all areas of dentistry and to represent, protect, promote and develop the interests of the dentist as ethical practitioner, professional, educator, student, researcher, business person, citizen and individual.

CDA recognizes a particular responsibility to contribute to the development of national positions and standards related to dentistry, dental education, dental research, dental equipment, dental materials and dental personnel.

CDA is dedicated to the principle that all Canadians should have the best oral health care it is possible to provide; it actively seeks input from and dialogue with governments, consumers and all interested in dentistry to enable it to serve more effectively both its members and the Canadian public.

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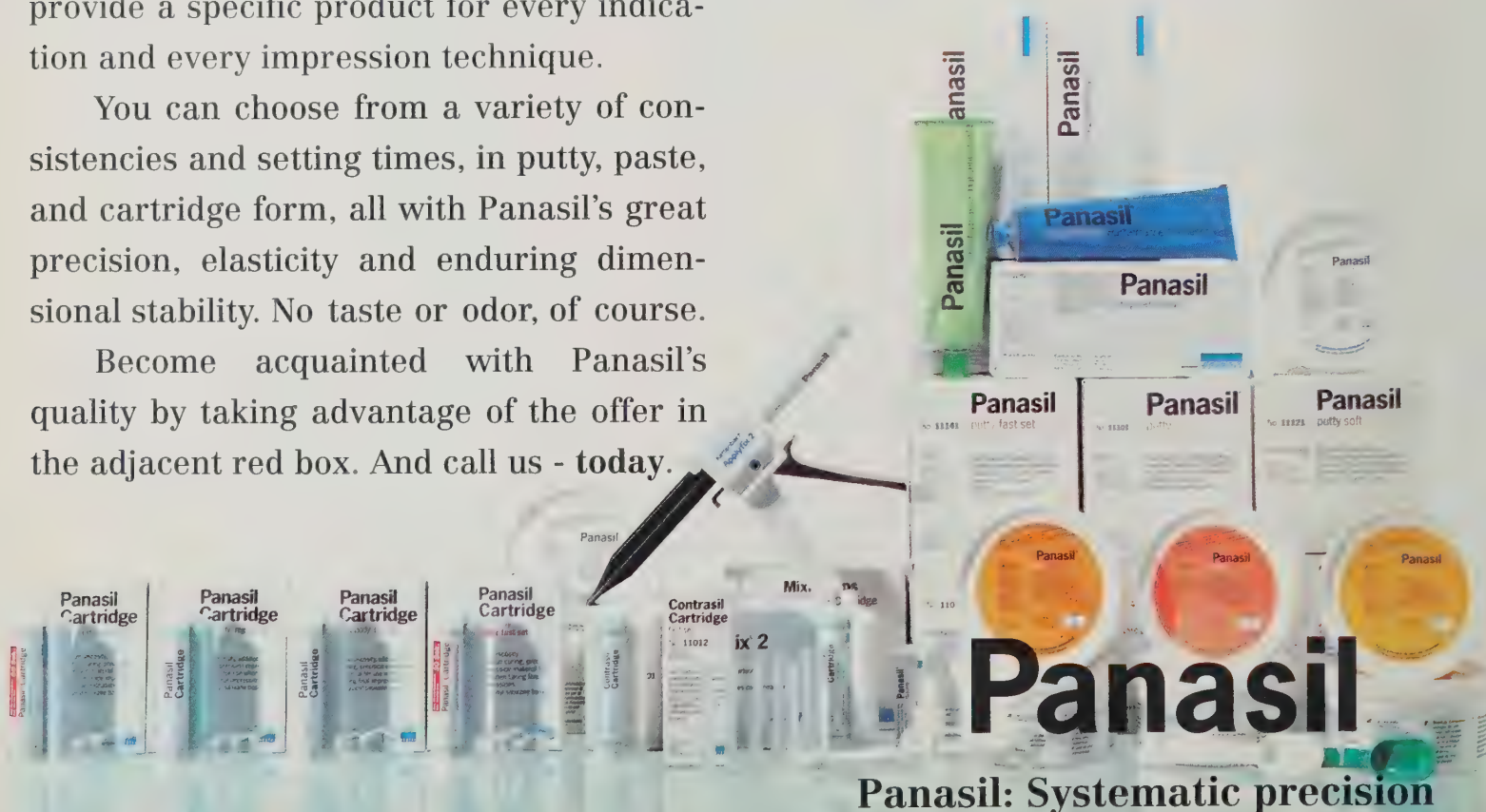
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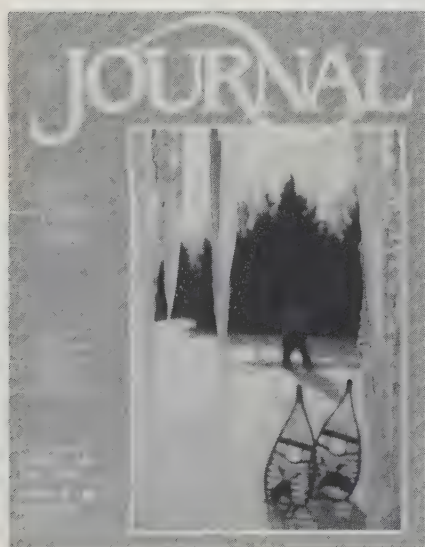
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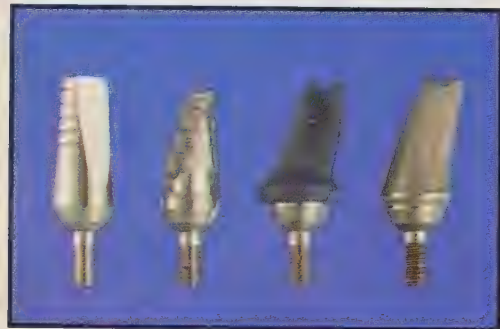
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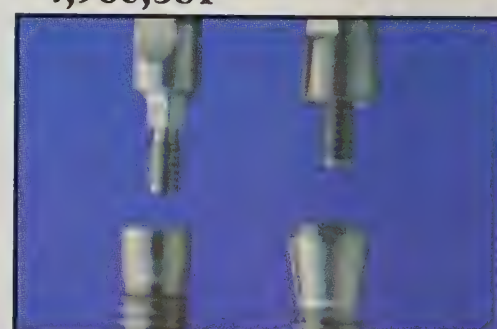
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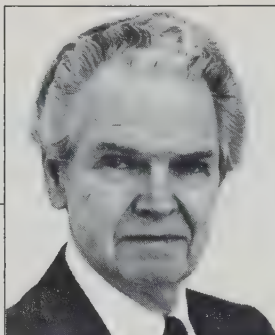


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Luctor et Emergo

From the late 1920's and early 30's there are many stories of perseverance and courage as people struggled to emerge from the worst depression ever to afflict this country. Few feats surpass that of a young Catholic priest, Father Athol Murray. With neither money nor experience he founded a school in the small western village of Wilcox, Saskatchewan, to help the young people of the poverty-stricken prairies obtain a higher education.

Notre Dame College gained the reputation as the "school of hard knocks" and the "miracle school of Saskatchewan". The students, known as 'hounds', lived in abandoned chicken-coops and derelict bunk-cars. Fuel during the bitter prairie winter, and food both winter and summer, were always scarce. But the unique educational experience and the stress the College placed upon sports produced alumni with international reputations as great leaders and outstanding athletes.

When "Père" Murray died in December 1975, his legacy of excellence lived on within his College. Today it is the largest privately supported co-educational school in the country, and after 60 years, continues to graduate remarkable leaders and renowned athletes. Its motto, "**Luctor et Emergo**" — Struggle and Emerge — truly embodies the story of Athol Murray College of Notre Dame.

At the threshold of a New Year, it is well to look back on previous struggle and assess present-day achievements. Without adversity there can be no gain. One of Père Murray's famous sayings was "Adversity, gang — that's what gives you strength".

The Canadian Dental Association since its founding in 1902 has undergone numerous struggles and emerged with much to its credit — because dedicated dentists dared to face adversity.

This very *Journal* was founded in the midst of the Great Depression because scholars of the day flinched not from challenge. Two remarkable achievements of the 1960's, CDSPI and a Uniform System of Codes and Lists of Services, both became benchmarks of organizational brilliance illuminating the way for associations around the world.

In the mid-1970's, leaders of CDA recognized that the home for a national association logically belonged in the nation's capital. By defying defeat and confronting opponents with careful reasoning, they established headquarters on Ottawa's Alta Vista Drive in 1976. Today a newly renovated building resounds with activities beneficial to every dentist in Canada.

In 1985 the CDA *Dental Awareness Plan* was founded to echo the message "Dental Health — Good For Life" throughout the land. Few initiatives have had greater success for the profession and greater acceptance by the public. For those who remember the travail of convincing the doubters, emerging from struggle can indeed elicit satisfaction.

And today, the early 1990's, can there be a challenge greater or a struggle more formidable than EDI — electronic data interchange? Yet men and women with vision, perception and courage do not retreat from detractors. In years to come they too will be known as those who dared to struggle and emerge.

P. Ralph Crawford, BA, DMD

Editor: Journal of the Canadian Dental Association

President's Column



Membership Enrichment

This is the time of year when every professional association assesses its continuing efforts to cultivate members' loyalty. Like a farmer ready to harvest, your national association seeks tangible assurances that the work it has assiduously pursued throughout the year has borne fruit.

The net effect is most visible in the increase in membership issuing from the voluntary provinces, Quebec and Ontario. But our self-evaluation doesn't begin and end there. The feelings, attitudes, and opinions of members throughout Canada impact considerably on how we develop future strategies to meet dentists' needs.

Every year CDA receives letters and calls expressing appreciation for the work it does. Yet even this bloc of support periodically enquires into the value of being a CDA member — and justifiably so. And when you ask yourself, "What has CDA done for me in the last year?", you're doing us a favour as well as yourself. We need to know that we're providing you with the services and benefits that you expect; your expectations change with the times and it's our special challenge to fulfill them. Our Annual Review is published for just that purpose: to show how we have responded to the needs you continually define and re-define throughout the year. The 1990 Annual Review, among many other items, features:

- our excellent record of representing your needs, fiscal and otherwise, to government;
- the much-imitated Dental Awareness Program (DAP); and,
- the success of the CDA Convention, bringing industry and fellow dentists together for their mutual benefit.

But the value of being a member of CDA is more than what the Annual Review highlights. Being a member means being part of a team full of energy and enthusiasm, trying to offer the best oral care to Canadians and serving the profession in a dynamic and proactive fashion.

It means working — on- or off-site — with dedicated CDA staff who enjoy their work and see its value on a daily basis. If you were to visit our Ottawa headquarters (and you have a standing invitation to do so!), you would be very impressed: it's a beehive of productivity. The same is true of the elected representatives, council and committee members, and volunteer dentists. They are a group of people who work together towards the same goal. Their level of enthusiasm and dedication is not common in this modern world.

Let me tell you one of my secrets — it's their infectious enthusiasm that encouraged me to be your President.

*Gilles Dubé, DMD, MSc, Adm. Santé
President of the Canadian Dental Association*

FDI Singapore Congress Attracts 10,000

The 78th Fédération Dentaire Internationale/78th Annual World Dental Congress was held in Singapore September 8-14, 1990. It was one of the most successful congresses in recent years. Of particular interest was the superb organization of the seven-day event — remarkable since there are only 600 dentists in Singapore.

Close to 10,000 people attended the Congress, 4,350 of which were dentists. Singapore's President, Mr. Wee Kim Wee, welcomed the delegates at a cultural extravaganza held in a brand new 14,000 seat stadium. Throughout 1990, Singapore celebrated 25 years of independence with the slogan 'one City, one Nation, one People'.

A record-breaking 91 countries were officially represented at the Congress — Canada stood seventh with 185 dentist-registrants. Apart from Singapore and Malaysia who registered a total of 515 delegates, the top six countries represented were Japan (474), Sweden (431), Finland (298), Australia (294), USA (265) and Germany (240).

Official delegates representing the *Canadian Dental Association* were CDA President, Dr. Gilles Dubé, and Past-President Dr. Jack Neidermayer. Dr. William R. Thompson, CDA President 1983-84, has been Treasurer of FDI for the past three years.

The FDI Scientific Programme showed strong interest for general practitioners with its theme, 'New Frontiers in Dentistry'. Near capacity audiences were evident at the plenary sessions. Also popular were the 200 exhibitors from 28 separate countries. △



W.R. Bedford

Canadian Chairman Completes Term at World's Chief Dental Officers Conference

Dr. W.R. Bedford, Senior Consultant — Dentistry, Health and Welfare Canada, completed his three year term as Chairman of the World's Chief Dental Officers Conference. The Conference was held in conjunction with the FDI Congress in Singapore. Dr. Bedford's successor as Chairman is Dr. Shamus O'Hickey of Ireland.

More than 100 dental-officer registrants from 65 countries meet annually to share information on dental health programmes throughout the world. △



Ottawa AIDS Reporting System 'In a State of Chaos' says Statistics Chairman

A report from the University of Western Ontario's Department of University Relations states that the Canadian AIDS reporting system is in "absolute chaos". Dr. Ian MacNeil, Chairman of UWO's Department of Statistical and Actuarial Sciences, says that the federal AIDS reporting system has some very serious flaws in its method because it's producing data which cannot be analysed.

According to MacNeil, the system provides yearly and quarterly information and the quarterly data does not add up to the yearly data. One month hundreds of cases are reported, the next month, only two. "How can anybody makes sense of it?" says MacNeil. "It calls for an inquiry."

MacNeil claims that confusion has characterized the collection and analysis of AIDS data since the beginning of the epidemic. As an example he claims that in 1985, Dr. Norbert Gilmore, then Chairman of the Canadian National Advisory Committee on AIDS, predicted there would be close to 105,000 cases of AIDS in Canada during the 1980s. The actual number was roughly 3,500 or one-thirtieth of his forecast.

MacNeil says the present concern about the increasing number of women contracting AIDS is misplaced, because although the numbers are larger, the percentage of total AIDS cases in women has remained steady at 5 to 6% over the five years. "There is no evidence to indicate that there is a change in the infection rate for women," he states.

MacNeil predicts on the basis of his models, that the number of AIDS cases will have peaked in 1990, and then gradually will start to decline. △

Canada Will Host FDI in 1994

The sites of future FDI Congresses were announced at the Singapore Congress:

79th Congress	Milan, Italy	October 7-13, 1991
80th Congress	Berlin, Germany	September 20-26, 1992
81st Congress	Göteborg, Sweden	Aug. 29–Sept. 2, 1993
82nd Congress	VANCOUVER, B.C.	October 2-8, 1994
83rd Congress	Hong Kong	to be advised

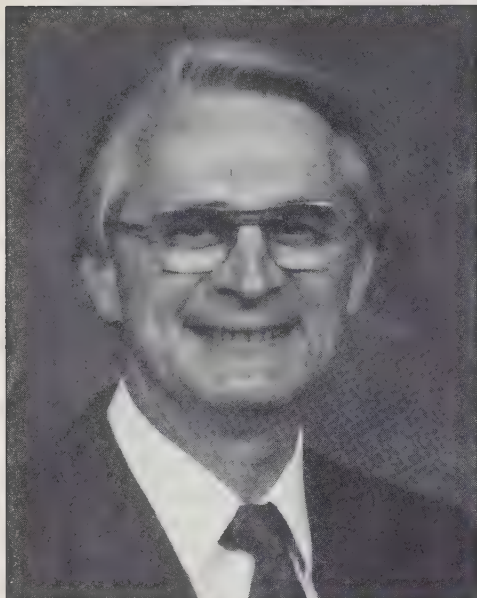
Did you know?

It's About the Government

"Parliamentary democracy is the worst form of government, except all others."

Winston Churchill

Dr. Louis C. Melosky Appointed to the Order of Canada



Dr. Louis C. Melosky

Dr. Louis Melosky of Winnipeg has been appointed a member of the Order of Canada. The investiture took place on October 24th at the Governor General's residence in Ottawa.

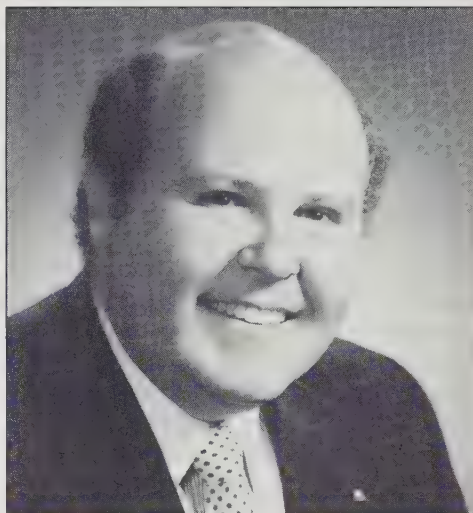
Appointment to the Order of Canada is the highest honor that Canada can bestow upon its citizens. It was created July 1, 1967 — the 100th anniversary of Confederation — to recognize outstanding achievement and service in every important field of human endeavour.

Dr. Melosky is a Past-President of the *Canadian Association of Orthodontists* and of the *Manitoba Society of Orthodontists*. He also served on the Board of the *Mid Western Society of the American Association of Orthodontists*. In the area of post secondary education, he served as Chairman of the Board of Governors of the University of Manitoba and is presently Chairman of the Universities of Manitoba Grants Commission.

Dr. Melosky is involved in community affairs and has served on various committees and boards. He has promoted the concept of multiculturalism in Canadian society and he served as National Chairman of the Canadian Multiculturalism Council. He is Chairman of the *Canadian Foundation for Ukrainian Studies* which is presently publishing *The Encyclopedia of Ukraine* in the English language. △

Dr. Barry Chapnick Elected President Canadian Academy of Endodontics

Dr. Barry Chapnick of Toronto was elected President of CAE at the Academy's annual meeting in Saskatoon, Saskatchewan on September 15, 1990. Dr. Chapnick, on the teaching staff at the University of Toronto, received his DDS in 1970 from Toronto and his certificate in Endodontics from the Boston University Goldman School of Graduate Dentistry in 1974.



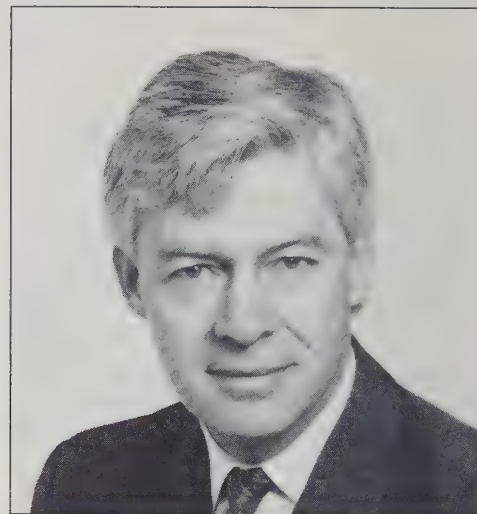
Dr. Barry Chapnick

Other officers serving the Academy are Dr. Carl Hawrish, Edmonton, Past-President; Dr. Sharma Sinanan, Vancouver, President-elect; Dr. Wayne Acheson, Winnipeg, Treasurer; Dr. Stephan Brayton, Halifax, Executive Secretary, and Dr. Wayne Pulver, Toronto, Constitution and Bylaws.

The CAE meeting was held in conjunction with the annual meeting of the College of Dental Surgeons of Saskatchewan. Featured lecturers were: Dr. James Spooner from the Faculty of Medicine, University of Saskatchewan; Dr. Stanley Malamed, University of Southern California and Dr. Edmond Truelove, University of Washington. Representing the Canadian Academy of Endodontics, Drs. Ken Zakariassen, Lorne Chapnick, Joe Schwann, Howard Fogel and Earl Winestock, each presented clinical papers.

Next year's CAE meeting will be held at the Digby Pines Resort, Nova Scotia, August 21-25, 1991. △

New CFDE Trustees Appointed



Mr. Arthur Zwingenberger

Dr. Ted Ramage, CFDE Chairman, is pleased to announce the appointment of Dr. Robert Dupont and Mr. Arthur Zwingenberger as Trustees of the Canadian Fund for Dental Education. These appointments were approved at the 1990 CDA Board of Governors meeting held in Ottawa on September 1st. Dr. Dupont is appointed Trustee for the Province of Quebec and Mr. Zwingenberger is Trustee representing the Dental Industry.

The Fund's retiring Trustees are Dr. Louis Bernier and Mr. Robert Cajolet. Dr. Bernier served as Trustee representing the province of Quebec for six years and Mr. Cajolet served as a Trustee for four years and as Vice-Chairman for the last two years of his appointment. Mr. Lee Maddison replaces Mr. Cajolet as CFDE Vice-Chairman.

The CFDE and the dental profession are deeply indebted to these gentlemen for their outstanding contributions to dental education and research in Canada. △

Did you know?

It's About the Government

"Governments sometimes do the right thing, but only after they have exhausted all the alternatives."

Richard J. Needham
'Globe and Mail'

Canadian Medical Association Calls Off Canada Health Act Court Battle

After five years and more than \$700,000. in legal fees, the *Canadian Medical Association* brought an end to its battle against the Canada Health Act without getting its day in court. This was the decision of the CMA General Council after a 75-minute debate in Regina last August at its annual meeting.

The CMA challenged the 1985 Canada Health Act primarily on the grounds that it was a federal intrusion into an area constitutionally defined as a provincial responsibility. From CMA's point of view, medicare is third-party insurance which is applied to the payment of patient expenses.

In a report carried in the *Journal of the Canadian Medical Association*, the decision was far from unanimous. Numerous delegates urged the fight be continued on principle. However, pragmatism carried the day as the majority of delegates decided the chances of legally winning were too slim and the costs too high.

Mr. B.E. (Woody) Freamo, Executive Vice-President of MD Investment Services Ltd., and a major player in the legal challenge stated, "If we win, we lose. All we would have is Pyrrhic victory. The profession would be living under the same set of circumstances and all we would have is the right for the provinces to have user fees." △

Did you know?

Canadians smoked 56 billion cigarettes in 1989

Despite an incredible 56 billion cigarettes smoked in 1989 there has been a decrease of 20.2% in consumption between 1980 and 1989. *The non-smoking campaign is working.*



The Canadian Dental Association has long advocated a smoke-free environment and fully supports the Canadian Council on Smoking and Health's

**NATIONAL NON-SMOKING WEEK
JANUARY 21-27, 1991**

The 1991 campaign focusses on the fact that children and tobacco don't go together.

The goal is a "Smoke-Free Class of 2000"!



Tobacco kills 35 000 Canadians each year.

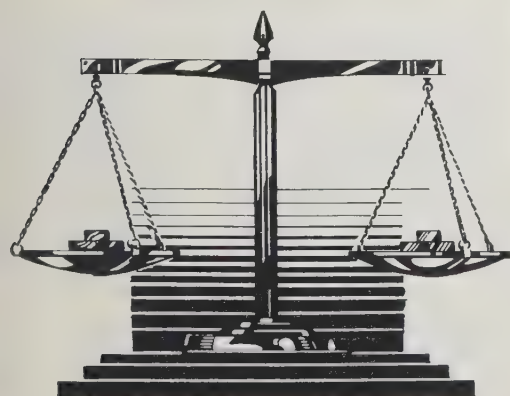
Virtually all new smokers are children.

For every 100 000 15-year-old smokers (half girls, half boys), tobacco will kill at least 18 000. The following chart compares tobacco deaths with other causes of future deaths for every 100 000 smokers now age 15:

Cause of Death	Tobacco Will Kill
1 200 Car Accidents	15 X more
900 Suicides	20 X more
130 Murders	135 X more
70 AIDS	250 X more
10 Drug Abuse	1 800 X more
2 310 All Combined	Almost 8 X more



Source: Canadian Council on Smoking and Health.
Data obtained from the Laboratory Centre for Disease Control, H.W.C.



Nutrition in Dentistry 1990 CDA/CFDE Teaching Conference

Dental Educators and nutritionists from across Canada attended the CDA/CFDE Teaching Conference on *Nutrition in Dentistry* in Toronto on October 19-20. The conference focussed on the challenges dental professionals face in educating themselves and their patients on the benefits of good nutrition.

Challenge: Status of the Elderly

Dr. Athena Papas, of Tufts University, challenged dental professionals to consider the needs of all patients, particularly the elderly. Dental and medical infirmities that interfere with chewing, digestion, or metabolism can contribute to poor nutritional status. Other factors that may influence the food selection and eating habits of the elderly are low income, loneliness, and poor cooking facilities.

Challenge: Utilize Good Resource Material

Dr. Renal Mendelson, Director of the School of Nutrition, Consumer and Family Studies at Ryerson Polytechnical Institute, urged dental educators to instruct students on the importance of good nutrition for themselves and for their future patients. Keeping abreast of information on nutrition is a sound investment for the dental professional. Dr. Mendelson pointed out that it is best to rely on good resource material for nutrition information rather than updates in popular media.

Challenge: Students — Knowledge and Skills

Mary Faine, Nutrition consultant at the University of Washington School of Dentistry in Seattle stressed that in order for students to retain knowledge on nutrition, they must have ample opportunity to apply nutrition principles in patient care. Clinical nutrition experiences are often lacking in dental schools since there is often no faculty member who can train students in effective nutritional counselling. **Donna Henneyey**, Nutrition consultant at the Faculty of Dentistry, University of Toronto, emphasized that students can practice nutrition counselling techniques in small group workshops where role playing can develop their interpersonal communication skills. From here, students can move into the clinical setting



where their counselling techniques are observed by a skilled nutrition counsellor who can provide students with feedback on their performance.

Challenge: Snacking

Busy lifestyles and long days have made snacking an important addition to daily meals. The Ontario Milk Marketing Board recently launched a booklet and poster campaign to increase public awareness on healthy snacking. **Leslie Depodesta** discussed the campaign and recommended the 3-step snacking guide:

1. *Snack nutritiously (few empty calories).*
2. *Limit the number of snacks (2-3 per day).*
3. *Change the snacking menu daily (lots of variety).*

The new guidelines emphasize that healthy snacking doesn't replace the need for daily dental care — the two go hand in hand. △

The success of the Conference was made possible through the initiative and encouragement of:

*The Association of Canadian
Faculties of Dentistry
The National Institute of Nutrition
and*

generous support by:

*The Canadian Dental Association
The Canadian Fund for
Dental Education
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Antibiotics in Periodontal Therapy

This is an excellent review of the indications and possible complications of the use of antibiotics in managing periodontal disease. Antibiotics are not a panacea, and should be used carefully and selectively in the early onset types of periodontitis and where adult periodontitis has not responded to mechanical therapy with or without surgical debridement.

Frequent use of antibiotics to mask inadequate scaling and root planing or the use of inappropriate antibiotics such as penicillin or erythromycin may lead to superinfections with unusual types of organisms such as enteric rods, pseudomonads and *Candida*. These infections may easily go undiagnosed. They will not respond to commonly used antibiotics and will likely result in progressive periodontitis with tooth loss.

When mechanical therapy (scaling and root planing, possibly combined with surgery) has failed, in the presence of optimal homecare, the tetracyclines (for early onset disease forms) or metronidazole (for refractory adult disease) are the antibiotics of choice. Again, they must not be incorrectly or over-prescribed. Patient compliance should be monitored as poor compliance is another reason for treatment failure. Patients who fail to respond to these drugs should be sent promptly for microbiological sampling and specialist care.

Slots, J., Rams, T.E., *J Clin Periodontol* 17:479-493, 1990.

Recurrent Aphthous Ulcers

Patients with recurrent aphthous ulcers know when a lesion has started. A simple self-treatment to reduce painful symptoms and speed resolution of the lesions is recommended primarily for patients who are otherwise healthy. Those with severe or debilitating lesions, persons with known blood dyscrasias, diabetes or systemic diseases require a more thorough evaluation or consultation.

Technique:

- Instruct patient to wait for the first clear appearance of a small ulcerated area.

- Apply a topical anaesthetic on a cotton tip applicator and in 15 seconds, a fresh moistened applicator tip is deliberately spun on the lesion (like a rotating tire) to debride the necrotic plug. An over-the-counter preparation (Anbesol; Whitehall Labs) is effective for painless treatment.
- Patients perform debridement 3 times a day for 3 days or until they feel that discomfort has been reduced.
- If discomfort remains after debridement, an emollient paste (Kenalog in Orabase; Squibb) can be applied.
- If lesion persists for more than 2 weeks, the patient should be advised to return for further evaluation.

Hartsfield, C.E. *Gen Dent* 38:194-195, 1990.

Special thanks to **THE DENTALETTER**,
November, 1990.

Providing about 25 concise summaries in each eight page issue THE DENTALETTER keeps dentists' clinical knowledge up to the minute with only a 1/2 hour of reading per month. For subscription information contact 133 Richmond St. W., Toronto M5H 3M8, telephone (416) 869-1777.

Ontario Endodontists Elect Officers

A new slate of officers was elected at a recent meeting of the Ontario Society of Endodontists held in Toronto:

President	Dr. Calvin D. Torneck
Past-President	Dr. Wayne Pulver
President-elect	Dr. Keith Hunter
Treasurer	Dr. Lionel Lenkinski
Secretary	Dr. Robert Munce

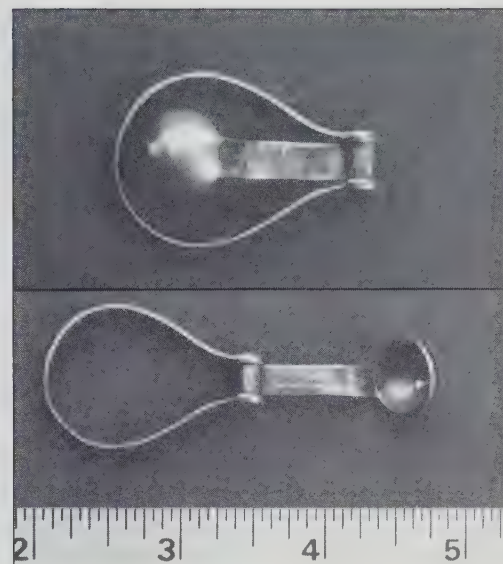
The mailing address for Dr. Torneck is
*Department of Endodontics, Faculty of
Dentistry, University of Toronto,
124 Edward Street, Toronto, Ontario,
M5G 1G6. Δ*

“WHATSIT?”

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It's constructed of brass with
a hinged connector between
cup and handle

(Write to Dr. Ralph Crawford, Journal
Editor 1815 Alta Vista Drive,
Ottawa, Ontario, K1G 3Y6.)



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Fund	Unit values as at	
	November 30, 1990	October 31, 1990
Bond & Mortgage Fund	77.08247	75.18605
Common Stock Fund	15.33656	14.95232
Money Market Fund	53.32115	52.83538
Balanced Fund	29.65033	28.96432

G.I.C. Fund

Term

	*Interest rates as at	
	November 30, 1990	October 31, 1990
1 yr	11.50%	11.80%
2 yr	11.25%	11.45%
3 yr	11.25%	11.35%
4 yr	11.10%	11.30%
5 yr	11.05%	11.30%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

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For further information:



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CDSPI

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Willowdale, Ontario
M2J 4Z3

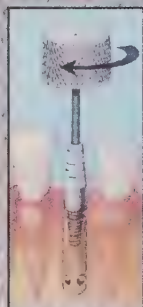
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Quebec 1991 Convention

August 24 - 28

Convention Update

Conventions - A learning experience



Every convention is designed to make learning fun ... and the Canadian Dental Association's Annual Convention presents no exception. The Convention Committee strives to strike a delicate balance between the knowledge imparted and the enjoyment factor - and it is no simple task. However, having a host city with unusual attractions and unique appeal is always a definite asset and this year, Quebec will provide a splendid backdrop for what we hope will be a stimulating and enlightening scientific program.

Upon my return from the 131st Session of the American Dental Association, held in Boston last October, I reflected on all that I had learned during my brief stay. Hopping in and out of lectures and listening to numerous internationally and nationally acclaimed expert clinicians I was exposed to a number of fascinating tidbits of information which have enhanced my dental practice on a variety of levels.

The knowledge I gained through this convention experience varied. I left with new information about the never-ending saga of the smear layer, light- and dual-cured resin cements, re-distribution of workloads in the dental office among staff, studies revealing the secrets of North America's longest-living peoples, office design and its impact on infection control, use of attachment proteins and guided tissue regeneration in periodontal treatment, to site just a few.

But lecture rooms were not the only place where I gathered new information. The Exhibit Hall also offered a wealth of new ideas. In today's high tech., scientifically oriented world, new dental materials and innovative dental equipment is introduced daily. A convention's exhibit hall gives you the opportunity to gather information on the topics of your choice. I have found that no convention experience is complete without a trip to the Exhibit Hall to get a glimpse at what's new in the marketplace.

In Quebec next August, the 1991 CDA Convention will feature a scientific program that addresses many of the subjects noted earlier, in addition, it will offer delegates an Exhibit Hall containing the latest in dental technology and ideas.

Another plus is that again this year the Canadian Dental Assistants' Association and the Canadian Dental Hygienists Association are teaming up with CDA Conventions to encourage attendance from all sectors of the dental profession. With the assistance and guidance of representatives from these organizations, the scientific program will seek to attract dental assistants, hygienists and technicians from across the country. Special efforts will also be made to include sessions that will be of particular interest to dental administrative staff.

We look forward to welcoming you to Quebec and encourage you to make plans **today** to join us in August. Over the next few months you will be able to read about the progress the 1991 Convention Committee is making as it strives to develop another successful CDA Convention, right here in the *CDA Journal*. Be sure to watch for the "blueprints" that will keep you up-to-date on all that awaits you in 'la belle province'.

Michel Lahjah, D.D.S.
General Chairman
CDA Conventions



1991 CDA Convention, Quebec City, August 24 - 28 — Come climb with us!

Quebec 1991 Convention

August 24 – 28

Historic Quebec: A Stroll Back in Time

As one of UNESCO's world heritage sites, Québec City has a wide range of historical sites awaiting your discovery. The **Artillery National Historic Park** is one such site. Located near the St. John's Gate, it bears witness to nearly two and half centuries of military, social and industrial history featuring the Dauphine Redoubt (1712) and its displays, the Officers' Quarters (1818), an awareness center for children; the iron foundry (1902), the first ammunition factory in Canada; and the famous scale model of Quebec (1806-1808) depicting the city at the beginning of the century.

The **Palace Vaults** are located at the foot of Côte du Palais. It is the archeological site of Intendant Jean Talon's first palace, built on the foundation of the Jean Talon brewery dating back to 1669. The palace burned down in 1713 but was rebuilt in 1715, and its cellar vaults have now become the Initiation to the History of Quebec Center.

Known as the Grande Place under the French regime, **La Place d'Armes** is a public square that has changed drastically since it was chained off in 1824. A monument to the Faith over a fountain is the focal point of today's bustling square - a landmark in the old walled city in uppertown.

Not far from the Château Frontenac you'll discover Quebec's **Anglican Cathedral**. Dating back to 1793 it is the oldest Anglican Cathedral still standing outside the British Isles. A replica of London's beautiful St-Martin's-in-the-Field, it is the custodian of many valuable treasures received from King George III. It also has an exceptionally good peal of bells.

The **Notre-Dame Basilica** is another daunting example of Quebec's fascinating historical past. In 1633 Champlain, the founder of Quebec, built a chapel on part of the grounds now occupied by the Basilica. It was destroyed by fire in 1640, rebuilt in 1650, elevated to the status of a cathedral in 1674 and to a basilica in 1874.

Quebec is also home to North America's fourth oldest university and the oldest French language one on the continent. Located in suburban Ste-Foy, **Laval University** comprises twelve faculties and eight schools (including a dental school). The campus covers an area of 557,400 square metres and serves a student population of more than 35,000.



Place D'Armes – the traditional heart of Quebec.

Quebec 1991 Convention

August 24 - 28

A city rich in heritage ...

Quebec's **Parliament Building** also offers visitors a spectacular glimpse at the city's historical past. Built between 1877 and 1886 it is among the loveliest buildings in Quebec. It is an imposing structure whose four wings form a quadrangle approximately one hundred metres square. Its architecture is unique in North America and was inspired by 16th century French classicism. The interior and exterior decor reflect the highlights and dominant personalities of Quebec's history. The Parliament has been the seat of Quebec's Legislative Assembly for over a century and its two large assembly halls are lavishly decorated with paintings, coats-of-arms and heraldry.

Another 'must see' for those new to the city is the **National Battlefields Park**, a.k.a. the Plains of Abraham. Once the battlefield between two European empires disputing the mastery of North America, this gently rolling 250 acre tract of land perched high above the St. Lawrence is now a delightful tourist attraction.

At the heart of lower town that grew up around the harbour is **Place Royale**, site of Champlain's first French settlement in Quebec. It houses such fascinating points of interest as the Notre-Dame-des-Victoires church (1688), the Royal Battery (1691) and la Place de Paris which offers a fine mix of archeological findings, a children's park, boutiques, art galleries and restaurants.

While in Quebec, don't miss the opportunity to check out the unique architectural design of the **Quebec City Hall**. Inaugurated on September 15, 1896 it was built on a site which was formerly occupied by a Jesuit boys' college (1635-1877) and a church (1666-1800). The hall is a blend of architectural styles characteristic of the Victorian era.



The Parliament Building, Quebec's most national historic site.



Place Royale is the oldest market square in the continent. The square's old stone buildings have been lovingly restored, and it looks as if cloned in Normandy.

Quebec 1991 Convention

August 24 - 28

Charm and history at every turn...

Beneath City Hall one will discover the "Life in Quebec" Urban Interpretation Center. This unique exhibit, established by the Quebec Historical Society, offers a glimpse of a contemporary Quebec City lifestyle through an impressive scale model of metropolitan Quebec and electronic quiz boards.

The largest military fortifications in North America still garrisoned by regular troops are found at Québec's **Citadel**. Originally constructed as part of the British strategic defence system of North America, the Citadel was built by the Royal Engineers (1820-1832) on the site of XVIIth century French defences. The Citadel is the official residence of the Governor General in French Canada and home of the Royal 22^e Régiment.

Another neat place to visit while in Quebec is the **19th Century National Historic Park**. Located at 100 St-André Street near the Louise Basin in the Old Port of Quebec, this historic park illustrates the vital commercial role the port of Quebec played during the 19th century. It also offers one a superb view of Old City architecture and the port activities.

And finally, let me tell you about one of the most fascinating ways to explore historic 'Vieux Québec': Climb the **historic stair-**

ways between the Town Below and the Town Above! About ten years ago city officials began looking closely at the wealth of stairways linking the two towns, and in fact, they decided they were really historical monuments.

Tens of thousands of dollars have since been invested in restoring and embellishing the twenty-eight remaining stairways, most of which still serve a useful purpose as a shortcut between various areas of the city. So, pack your hiking boots and prepare to climb - stairs, that is!

We urge you to make plans NOW to bring your entire dental team to the nation's cradle of French civilization next August. The 1991 CDA Convention offers you an opportunity to catch the latest scoop on up-and-coming dental technology in a distinct environment. Join us August 24-28 in Quebec, where learning becomes a unique pleasure.

Special thanks to the publishers of "Vieux Québec" - the official journal - and of the Québec Region Hotel Association - for providing interesting material for this article.



The view from the citadel is sweeping. A visitor looks over the spires, turrets and rooftops of the upper town to the Laurentians down at the river and out onto the Plains of Abraham.

CDSPI Reports



A spousal RSP means savings

Good tax planning should include allocating taxable income as evenly as possible between you and your spouse. Such income splitting can be accomplished through a spousal RSP. Benefiting from a spousal RSP means that you make contributions to a plan that is in your spouse's name. There are a number of advantages associated with this type of arrangement. First, you are permitted to deduct the contributions from your taxable income. Second, subject to the comments below, since the plan holder is your spouse, funds withdrawn from the plan will be included in computing your spouse's income. Such funds will be subject to tax at your spouse's marginal rate which is usually lower than yours. Third, where payments are received after the maturity of a spousal RSP and the recipient is 65 years of age or over, such payments are eligible for the \$1,000 pension income tax credit. As a result, if you and your spouse each have an RSP, you both can claim the pension tax credit thereby doubling up on the normal deduction.

Generally speaking, a spousal RSP does not increase the total amount that you may contribute to RSPs. In fact, a contribution to a spousal RSP is only deductible in computing your income to the extent that such contribution would have been deductible if it were made to your own RSP. The maximum contribution that may be made to RSPs for 1990 is the lesser of \$7,500 or 20% of your "earned income". Therefore, if you contribute the maximum amount to a spousal RSP, you cannot contribute to your own RSP in the same year.

As with all RSPs, contributions are no longer allowed after the end of the taxation year in which the plan holder attains the age of 71. However, as long as your spouse is under 72 years of age, you may

continue to contribute to the spousal RSP and therefore receive the tax deductions.

Special rule for recent contributions

Under certain conditions, funds withdrawn from a spousal RSP can be taxed in your hands, e.g., if you withdraw an amount from a spousal RSP (other than to purchase an annuity or other retirement option) and you have made contributions to a spousal RSP in the year of withdrawal or in either of the two immediately preceding years.

Contributions made to a spousal RSP during the current year or in the two immediately preceding years will be taxable in your hands in the year in which funds are paid out of a collapsed spousal RSP (See Table I).

TABLE I

Year	Your RSP CDA RSP	Spousal RSP Bank RSP	CDA RSP
1986	—	—	\$ 7,500
1987	—	—	7,500
1988	\$ 2,500	—	5,000
1989	—	\$ 7,500	—
1990	7,500	—	—
	\$10,000	\$ 7,500	\$20,000

If your spouse withdraws \$15,000 from the spousal CDA RSP plan in 1990, you will have an inclusion in computing your income for 1990, calculated as follows:

- 1990 nothing included, as there were no contributions made to the spousal plan in that year.
- 1989 \$7,500 included. This contribution was made to the bank RSP, but contributions to all spousal

plans made in the current year or in the two immediately preceding years become taxable in your hands.

- 1988 \$5,000 included. Although you deposited \$2,500 in your own plan, only spousal plans are of concern, therefore the contribution to your own plan is of no consequence.
- 1987 nothing included, since it is past the three-year limit
- 1986 nothing included, since it is past the three-year limit.

The \$15,000 withdrawal is subject to tax as follows — \$12,500 in your (the contributor's) income for 1990, as only \$12,500 was deposited in spousal RSPs during the current or immediately preceding two years. The remaining \$2,500 is claimed in your spouse's income for the 1990 taxation year. If all contributions in the current and two immediately preceding years had been made to your own plan, the total withdrawal of \$15,000 from the spousal plan would be included in computing your spouse's income for 1990.

Exceptions to the rule

There are a number of occasions when this rule will not be applicable:

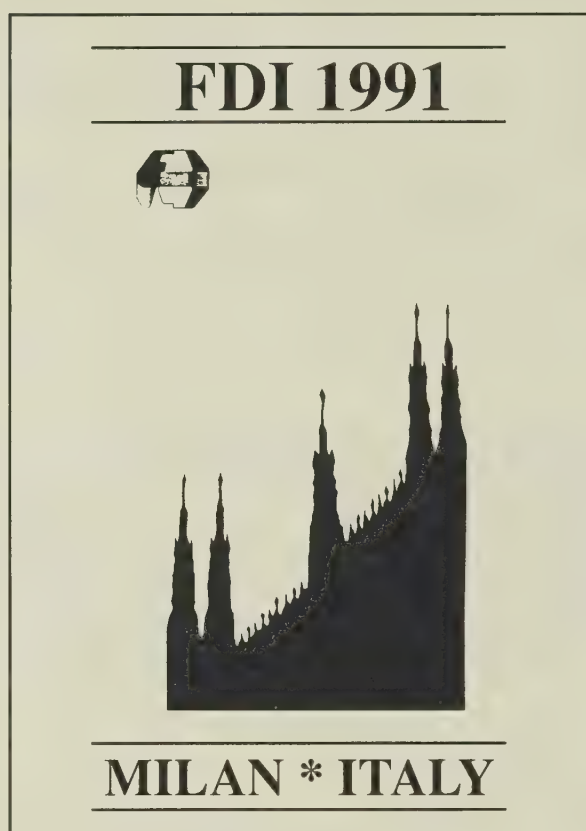
- If either the contributor or the spouse is a non-resident of Canada when the withdrawal occurs,
- if the contributor dies in the year of withdrawal,
- if the spouse dies and as a consequence an amount from the RSP is included in the spouse's income, or
- if spouses are living separate and apart by reason of the breakdown of their marriage at the time of the withdrawal.

The spousal RSP is an excellent planning and income splitting technique which deserves your serious consideration.

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The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

Referral No-no's

- **Sounding desperate:** Patients may be turned off if a request for referrals comes across as a desperate bid to keep your business afloat. Patients neither want to nor should be privy to your business problems.

- **Expressing self-doubt:** Telling patients that you are not getting enough referrals because you "must be doing something wrong" is a good way to damage patients' trust in you. And people who doubt your ability are unlikely to recommend you to others.

- **Ingratitude:** Patients will be disinclined to pass along your name if you react to their referrals as though they were impositions. After all, patients are doing you the favour.

Referrals: Spreading the Good Word About Your Practice

A recent Gallup poll has confirmed something dentists have known for a long time: Current patients are the main source of new patients. According to a recent survey of Americans age 18 and older, 35% of those polled said they selected their dentist based on the recommendation of a friend. Another 24% said their dentist had been recommended by a family member. These numbers become even more compelling when compared to a 1988 survey of American dentists in which it was reported that 74% of new patients were referred by current patients.

For the dental practice, the benefits of patient referral are clear. It is easy, inexpensive and a highly effective way to bring new patients into your practice. It also benefits the prospective patient, saving people the time and trouble of searching for a suitable dentist. A new patient may even feel more comfortable coming to your practice as "Joan's sister" or "Ted's friend" instead of as someone who spotted your name in the *Yellow Pages*.

The challenge for the dental practice is to encourage Joan, Ted and all your other patients to spread the word about your dental team, and to do so as widely and as frequently as possible. To help you spur them on, here are a few suggestions:

- **Let patients know that you welcome referrals.**

Patients may pass along your name without any prompting at all. Then again, unless they have been told that you are interested in referrals, they may assume you aren't taking new patients and decide to keep your name to themselves. The onus is on you to let patients know that you welcome referrals. The best way to do that is to tell them. Any member of the dental team can bring up the subject, as long as the time is appropriate and the approach is relaxed. The idea is not to make the patient feel pressured or uncomfortable, but to gently and tactfully plant the idea of referral in the patient's mind. To reinforce the message, you might want to post a sign in your reception area that says "We Welcome Referrals", or something to that effect.

- **Acknowledge every referral.**

People feel good when their efforts are recognized. So when a patient gives your name to someone else, let the patient know how much you appreciate it. The first time a patient gives a referral, you might want to acknowledge it with a handwritten thank you note. Subsequent referrals can be recognized with a phone call from the receptionist, or even a special gift. The ideal place to keep track of referrals is the patient's Tip Sheet. The Tip Sheet (see the July 1990 DAP Advisor) is a single page in the front of the patient's file that contains basic information. The sheet serves as a quick and handy reference about the patient for dental team members. Whenever a patient refers someone to your practice, it can be noted on the patient's Tip Sheet and acknowledged soon afterwards. Any time a team member discusses referral with the patient, it can also be noted so team members will know not to broach the subject again too soon. You might also want to acknowledge the person who has been referred. As soon as an appointment has been made, the new patient can be mailed a card that says "welcome to the practice". You might also want to include a brief letter with information about your policies and how to get to your office. The card and letter can help break the ice with a new patient and lay the groundwork for what may prove to be a successful and long-lasting relationship.

- **Establish ties with other health-care professionals.**

Patients aren't the only ones who can make referrals. There are other health-care professionals in your community, like physicians and pharmacists, who people trust enough to ask for a dental referral. Forging professional and personal links with other health-care personnel is a good way of making them aware of your practice and the services you offer. If, for example, you specialize in dentistry for children, it might be helpful to get to know some of the paediatricians in your community. That way they can recommend you to parents seeking a dentist for their children. Similarly, you might want to get acquainted with community pharmacists. You could provide them with information about your practice and general dental health information to pass along to people with dental queries. Among the queries pharmacists probably hear: "I have a toothache — can you recommend a good dentist?"

Whenever a professional refers a patient, acknowledge the effort with a handwritten thank you note.



The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Tooth Bleaching

Les blanchissants dentaire

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Acquisitions

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EVOLUTION IN DENTAL CARE

Edited by Richard J. Elderton

University of Bristol
Clinical Press Ltd.
U.K.

Distributed by Gazelle Book Services
(Lancaster, U.K.)
100 pages, Illustrations

This short book is based on the international conference 'Decisions in Forward-looking Oral Health Care', which was held in September 1988 at the University of Bristol, U.K.

The papers, presented by a variety of experts and, apparently, some of the discussion at the conference, have been neatly and unusually edited by R.J. Elderton (Professor of Preventive and Restorative Dentistry, Department of Conservative Dentistry, Bristol) who integrated all of this material into six main chapters. In addition to the introduction and summary, there are chapters concerning dental care past, present and future — success or failure; current understanding of oral disease and abnormalities; new strategies for oral health care; and planning for the future. The result is a highly interesting, provocative and educational publication.

What is the book about? Well, early on and throughout the text, great concern is expressed about out-of-date, even anachronistic, dental tools — drills and scalers — presently used to treat dental caries and periodontal disease. This concern arises from the discrepancy between what is known about these diseases from epidemiologic, dental care services and basic research and what is actually done in practice. The concern is the dominance of the so-called treatment imperative when prevention and caution about invasive treatment decisions should clearly be primary considerations. Near the book's end, with similar candor, the point of view is expressed that tradition and not common sense or research guide the present development of dental education and therapy. This is pretty strong stuff that will surprise and perhaps anger those not already familiar with its documentation in recent dental literature. Although space precludes a thorough listing, some other points discussed and (often) documented that tantalize prospective readers are:

- the tendency for dentists to over-service in the dominant treatment-oriented systems for providing dental care;
- the consistently low prevalence of

severe periodontal disease (7-15%) in adults and the similar levels of this disease in industrialized and developing nations;

- the contrast between notions of oral health that declare the need for 32 non-diseased, ideal teeth and those that say it is sufficient to have enough teeth to smile and enough molars to chew;
- the amalgam replacement epidemic and controversy, and the lack of guidelines concerning this debate;
- preventive monitoring by radiographs and the low current probability (50%) of cavitation, even when radiolucencies appear in the outer dentine;
- the idiosyncratic nature of dentists' treatment decisions;
- the non-invasive management of dental caries;
- the questionable origin and needed demise of the traditional six-month recall for most patients in industrialized countries;
- the lack of evidence about the real value of orthodontics in all but the most severe cases;
- the finding that restorative treatment merely begets more restorative treatment;
- innovative ways to cope with the shortage of dental personnel and the plethora of oral disease in developing countries;
- the decreasing needs in industrialized countries for traditional dentists and the increased future demand for more oral physicians and dental auxiliaries for prevention, health promotion and education.

Persons truly interested in dental-care and oral health should be familiar with the issues reviewed in this book. Although the bibliography and the suggested additional readings are adequate for those wishing to investigate the above premises, this is not a scholarly publication that is heavily referenced and footnoted. Only two of the conference participants were from North and South America. Prospective readers should not, however, assume that the problems discussed are irrelevant to North America. These are universal problems affecting all industrialized nations, particularly North America.

This book discusses in a very readable manner matters that should be of great concern to dental professionals and educators. It is highly recommended.

This book was reviewed by:
D.W. Lewis, DDS, DDPH, MScD, FRCD(C)

Faculty of Dentistry
University of Toronto

STATISTICS IN DENTISTRY

J.S. Bulman, J.F. Osborn

London
British Dental Journal
115 pages, Illustrations

This book is a short but well-written statistical reference book for dental practitioners who need help in understanding published dental research and clinical trial papers. It may also be useful to some dental researchers if they wish to apply simple statistical manipulations to their data. Many of the chapters appeared in a recent series of articles in the *British Dental Journal*.

The presentation of the material is very clear and concise, but still attends to details when needed.

The numerical examples following the formula are very useful. The dental-oriented practice questions at the end of the chapters provide the reader with a good test of his comprehension. Some more of these would increase the appreciation of the book.

The chapters are well organized, except for the introduction of the categorical data. This topic appears in the middle of other material, when it merits a chapter of its own. Brief reference to the binomial distribution and mention of Fisher's exact test would complement this chapter.

The scope of the material is quite extensive for the size of the book. The inclusion of some topics, such as Wilcoxon's signed-ranks test for paired data, multiple comparison of means following ANOVA, more of the simple ANOVA designs and the Mantel Haenszel chi-square test, are needed to give a complete coverage of the most frequently used simple statistical techniques.

The book is more useful as a reference book for those who have previously taken a statistical course, than for those who want to learn statistics. Very little explanation is offered with the presentation of the applicability of the tests and the methods of calculation.

In summary, the authors should be congratulated for putting together a short and condensed statistical reference, covering a wide range of topics.

This book was reviewed by:
A. Csima, BA, MA, and
D.W. Lewis, DDS, DDPH, MScD, FRCD(C)
Faculty of Dentistry
University of Toronto

In Our Profession, *Time Is Money...*

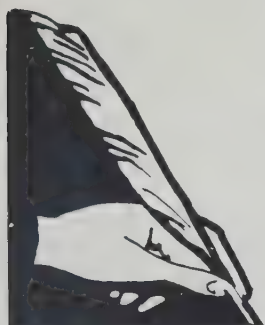
Searching from dealer to dealer for the best automobile lease can be time-consuming and frustrating. That's why the Canadian Dental Association is proud to announce its latest member service—CDA Leasing. Developed with you in mind, our leasing experts will answer all your questions and help you select the perfect vehicle for your needs. We'll also ensure you get the best possible price.

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Disasters Big and Small

I would like to comment briefly on the fine article "Disasters Big and Small" which appeared in the July 1990 edition of the *Journal*. Dr. Dorion presented a detailed account of the application of forensic dentistry for human identification in disasters. There is a minor error which is of little significance to the thrust of the article but may have some interest to Canadian dentists. In **Table III** the author indicates that a computer was used to assist the dental team in the Woodbridge Ontario Air Canada disaster of July 1970. This is incorrect. At that time, no computer program was available. The dental team did try to use a punch-card, manual sorting system. These devices, however, are in no way equivalent to what we know as a computer. Due to the severe fragmentation of the bodies and the fact that antemortem records were recovered from only 60% of the deceased, even the punch-card method had to be abandoned. The experience of that disaster spurred the development of the first authentic computer aided identification system. This was the "Made in Canada", Dental Identification Package. Soon thereafter, the RCMP adapted the logic of the DIP to the Canada-wide CPIC on-line data exchange. Canada was — if not the first — one of the first countries to have an on-line computer aided dental identification package. We have recently discovered that this system may not be efficient for mass disaster application in the field and members of the Province of Ontario Dental Identification Team are currently rewriting the program to provide a portable, easily manageable and friendly dental identification software. When completed, this software will be made available to users across Canada and elsewhere.

Stan Kogon, DDS, MSc
London, Ontario



Not International

Re: CDA *Journal*, Aug. 1990. Vol. 56, No. 8; p. 730.

Thank you very much for the nice write up about my appointment as President of the American Society of Forensic Odontology as well as your historical account of Forensic Odontology in Canada. It was well done and I appreciate it.

The article was entitled "Dr. George E. Burgman to become President of international group". It would certainly be an honour to be President of an international group but because this is *STRICTLY* an American group, the American Society of Forensic Odontology, it is even more of an honour for a Canadian.

George E. Burgman, DDS
Niagara Falls, Ontario



Eagles and Turkeys

Re: Editorial, *Journal*, September 1990

Dr. Crawford's editorial entitled "Eagles and Turkeys" disturbs me. He seems to be expressing approval of the prosthodontist who castigated the work of another dentist to his patient. It would seem to me that professional courtesy and ethics should dictate that we contact a colleague directly if we perceive some problem with his work in order to give him the opportunity to explain or correct the situation. Taking a "cheap shot" without checking to determine all the facts is unfair to the other dentist. It is also a disservice to the patient, in that it can cause resentment and anxiety, sometimes over something which could not have been prevented.

I agree that poor standards of treatment damage the reputation of the dental profession and that we have a duty to avoid and to correct this. I believe, however, that far more damage is done by individuals who criticize (often unjustly) their colleagues to their patients. While confrontation is more difficult, it is more responsible to point out any perceived inadequacies to first, the dentist involved and then, if necessary, to the appropriate professional body.

Brian D. Read, DDS
Calgary, Alberta

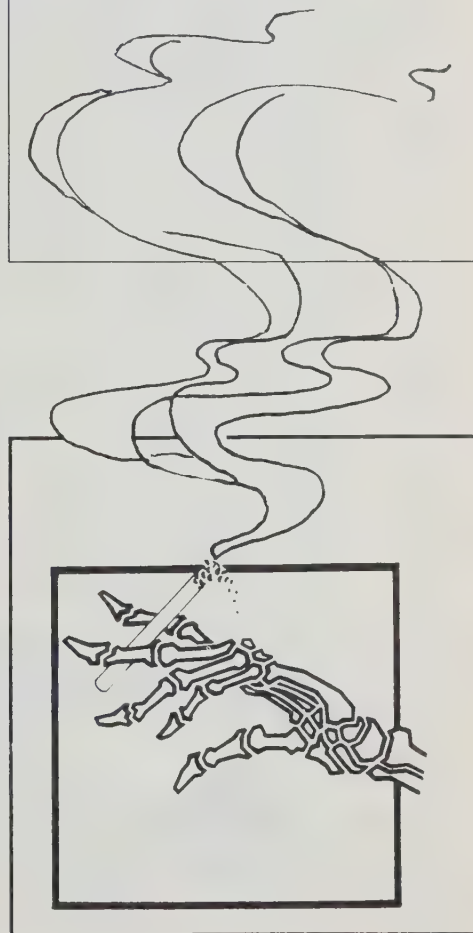
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"This is one of the few times we actually go to governments and tell them to increase a tax," said Mr. Douglas Geekie, the CMA's Director of Communications and Government Relations. "There is pretty hard proof that when the price goes up the amount of smoking goes down." He said the CMA would like to see the tax raised in Quebec because "the percentage of smokers is higher there than in the rest of the country".



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What exactly are you buying?

INTRODUCTION: Automation is an integral part of the business evolution of the 80's and 90's dentistry is no exception. Insurance companies are rapidly considering Electronic Data Claims. The age of electronic systems is here. Are you ready? Do you have the information you need to make your decision? This fourth of a series of six articles on Automation in Dentistry raises some of the questions you'll want to consider before choosing a computer system for your practice.

When people choose you and your office staff to provide them with dental services, what are they buying? Aside from the obvious treatment — a filling, crown, root canal or periodontal treatment — patients are buying your ability as well as the assurance that you can provide the dentistry they need. **Call it skill, care and judgement — the ability to do a good job.**

Let's speculate on similar aspects that relate to a dental office computer purchase. Remember that the life cycle of a computer system is time-dated. Much of 1988 technology is obsolete — both hardware and software. Software developers must consistently create enhancements to improve the basic function of their operating systems. We believe that people buying dentistry or computer systems are also buying trust — trust that the provider has the solution, and that the solution is priced fairly in the market. A dentist who purchases a computer system is investing in the track record of the company and the product. Look for longevity and a system for the future. The unfortunate truth in the software industry is that many companies fail and leave clients to fend for themselves or to become involved in complicated mergers of two or more software systems. We know of many practices that had to abandon computerized client files on unusable hardware and start again. The opportunity cost of re-entry is prolific, and there are no guarantees.

What are the Questions?

As a consumer you'll need to follow the philosophy "Let the buyer beware!" You can prepare yourself for a more successful transition into the world of dental office automation by asking some important questions.



Bud Sipko

- 1) How long have you been in business?
- 2) How many users do you have?
- 3) Do you provide regular updates?
- 4) How many updates have you released?
- 5) Could I have names of practitioners that:
 - a) are happy!
 - b) are indifferent (there are some)
 - c) have done updates
- 6) Do you provide regional or national user meetings?
- 7) Do you have information about these meetings? Are the meetings focussed solely on the workings of the computer system?
- 8) How many programmers work with the company?
- 9) How are client suggestions handled?
- 10) How does your company handle ongoing client support?

Now What?

The above questions serve as a starting point. There is no doubt you will have more queries. Once your questions have been answered, use your intuition. Don't

determine your acceptance or rejection of the company and its product based on one answer.

Are you buying the salesman, the system, the support, or the company as a whole? Your ability to answer this question will form the basis of your decision. The path to successful automation is fraught with opportunities for frustration and anxiety. Deal with a company that understands that and allows you the freedom to learn without the feeling that you are "stupid" or "dumb". The software company that helps you learn their system and makes you feel like you've accomplished something will be the successful company of the 1990's.

After spending time with several vendors, meet with your staff to discuss the options. Your front-office staff members will be grateful for the opportunity.

As a team you might ask these questions.

- 1) Which company presented themselves the most professionally?
- 2) Which system seemed to fit our needs best?
- 3) Which company had the most friendly and courteous personnel?
- 4) Which company was best able to respond to our questions?
- 5) Did any company give us the feeling we were being "sold"?

Beware!!

As a team, make your decision. Stay involved, keep asking questions and be prepared for the hard work of effective automation. Remember it's a journey — not a destination! △

Bud Sipko is a private practitioner in Richmond, B.C. Besides having a dental practice, he is the President of Selection Research (BC) Inc., a consulting organization to the dental profession which specializes in helping dentists and staff members become more effective health-care professionals.

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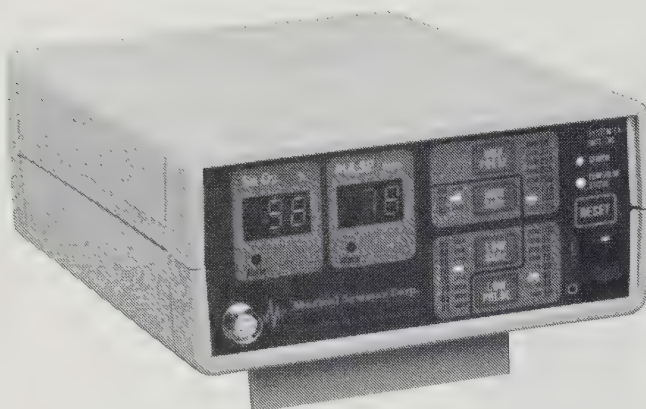
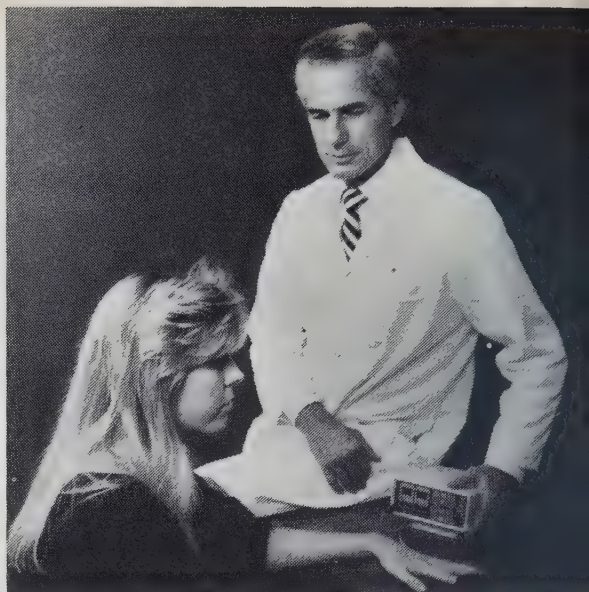
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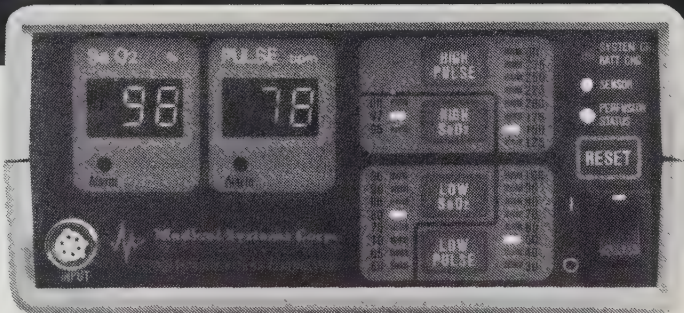
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The Canadian Economy in the '90s

Allan M. Maslove, PhD

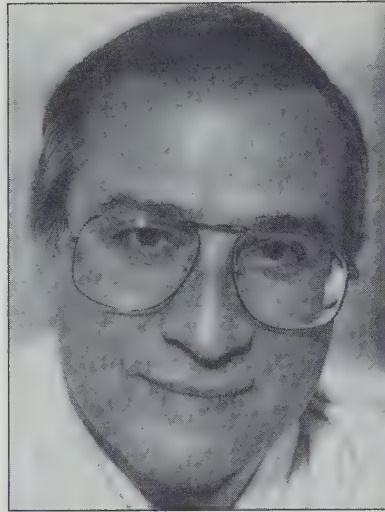
This month, we begin the last decade of the twentieth century. At points in our history such as this, it is natural to look ahead to the prospects and challenges we are likely to encounter. The purpose of this article is to do just that. However, our objective is not to predict developments in the economy, but instead to discuss some of the factors that bear watching in the short term and throughout the decade. If one understands why these parameters are important and the links among them, the implications of their movements become clearer.

What to watch in 1991

At the time of writing (November 1990) the severity and length of the recession is still unclear. What is more certain, is that this recession, as described by the Conference Board, is "made in Canada". This means that unlike most previous economic downturns which were largely caused by international economic forces, it was Canadian government policy that was essentially responsible for the onset of the recession in the first half of 1990. However, as we enter 1991, several other countries — the most important of which is the United States — are also beginning to experience weak economies, and this obviously will not help our situation.

In addition to these international recessionary pressures, the factors to watch in Canada as we enter 1991 are the rate of inflation, the level of interest rates, Ottawa's budget deficit, and the exchange value of the Canadian dollar. Let us begin with inflation and interest rates, recognizing that all of these variables are inter-related.

For several years the rate of inflation in Canada, as measured by the Consumer Price Index (CPI), has been stubbornly stuck at about 4 or 5% per year. In an attempt to reduce this rate, the Bank of Canada has consistently and vigorously pursued a policy of high interest rates to restrain demand and reduce inflationary pressures. In fact, the stated goal of the Governor of the Bank is to achieve zero inflation. As a result, the difference in interest rate levels between the U.S. and Canada has, in this period, been greater than at any time in memory. There is little



Allan M. Maslove, PhD

The Author

Allan M. Maslove is a Professor in the School of Public Administration at Carleton University. An economist specializing in public finance, Dr. Maslove is a graduate of the Universities of Manitoba and Minnesota. He was formerly a senior economist with the Economic Council of Canada. He is the author of numerous articles and several books, including *Tax Reform in Canada*, *Wage Controls in Canada: 1975-78* (with E. Swimmer), and *Federal and Provincial Budgeting*. Dr. Maslove was the editor of the 1984 and 1985 editions of *How Ottawa Spends*, an assessment of federal government policy produced annually by the School of Public Administration. He has been a consultant to agencies and departments at all levels of government, and to the MacDonald Royal Commission.

In 1980-81, Dr. Maslove was a visiting professor at the University of California at Berkeley. He was the Director of the Carleton School of Public Administration from 1981 to 1987. During 1987-88, he was Scholar-in-Residence at the Institute for Research on Public Policy.

evidence to suggest that the Bank is prepared to back away from its "magnificent obsession", despite the widely held view that its high interest rate policy was the single most important factor contributing to the recession.

What then are the prospects for lower interest rates? The Bank could ease its monetary policy if inflationary pressures were perceived to be lessening. The weak economy itself should lead to a decline in the rate of inflation, as wage increases are restrained, housing prices decline, and retail sales are generally depressed. (In that sense the Bank's anti-inflation policy might be labelled a success, but at such a high cost one might ask whether the cure is worse than the disease). Two other factors, however, are working in the opposite direction, at least in the short run. One is the start-up of the GST, which will add something in excess of 1% to the CPI this year. The other is the possibility that oil prices will rise further. The Bank has indicated that it will not react to the GST price effect unless it threatens to set off a new round of inflationary pressures. Given the instability in the Persian Gulf area, oil prices levels are anyone's guess.

High interest rates have also hindered the federal government's efforts to reduce its budget deficit by increasing the cost of servicing the outstanding debt. As a result, the government, in an attempt to contain the deficit, has cut its other spending and increased taxes. Thus, for example, we have seen Ottawa cut its grants to the provinces, reduce transfer payments to individuals, and cut back on its own programs. And we have seen the government waffling on the issue of whether the GST is actually revenue neutral. Moves such as these are the opposite of what one would ideally like during a recession; government should be stimulating the economy with increased spending and lower taxes.

As well, high interest rates have led to higher exchange rate values for the Canadian dollar. These in turn, have hindered our ability to export and have made imports more attractive, with further depressing effects on the economy. Now that other countries, in particular the U.S., are moving into their own recessions, exports will be further affected.

The severity and length of the recession in 1991 will, therefore, likely depend on three main considerations: 1) how fast and how far interest rates will decline; 2) whether the government will begin to ease up on its fiscal policy; and 3) international economic forces.

What to watch over the decade

In the longer run, a distinctly different set of underlying forces are likely to affect the Canadian economy in important ways. These forces will induce structural changes in the economy, though these trends are often difficult to discern beneath short run fluctuations such as the current recession. Four longer run forces merit comment. They are the continuing globalization of markets, changes in demographic structure, environmental challenges, and the outcome of our constitutional debates.

The world is in the midst of a far-reaching change in economic structure, in which national economies are becoming increasingly interdependent. The ability of any one country to moderate international market forces or to isolate itself from them is becoming limited. This is true of all countries and especially so for a small country (in economic terms) like Canada. Many associate these developments solely with the trade agreement with the U.S., but it is only one element of these forces. For the most part, they exist independently of the agreement.

These forces will induce major structural changes in the Canadian economy. Some industries will decline or perhaps disappear altogether, while others will emerge and grow. A major task that governments will face will be to manage and facilitate these adjustments through activities such as training and education, and the provision of social support programs.

Demographic change will also bring about important changes in the economy during this decade and beyond. We are near the beginning of a period during which the proportion of the population over the age of 65 will increase rapidly. Moreover, the average age of this seniors group will increase even more rapidly. The impacts are far-reaching.

A smaller proportion of the population will be in the prime labour market age group (say, 19-64). Among other things, this should mean that average unemployment levels will decline. We may also see more people working beyond the age of 65, and higher levels of immigration if labour market shortages develop. Some government services will come under pressure. For example, the demand for

health-care services will likely increase, and the nature of the services required will change. Older populations may demand different styles and levels of other services as well, ranging from policing to recreation services.

We will also begin to see changes in the pattern of consumer spending. The population reaching the age of 65 in the coming years will, on average, be significantly better off than any of their predecessors and will have more discretionary income. This will be reflected in their purchases of a wide variety of goods and services from housing, to vacations and food.

The third long-range factor we identified is the environment. There is little doubt that environmental concerns have reached a new prominence on the public agenda, and are likely to remain there for some time. Governments will come under increasing pressure from their populations to prevent further injury to the environment and to restore what has already been damaged. In part, governments are likely to respond with new and tougher regulations. In addition, however, environmental restoration is expensive, and if governments are going to become involved in spending large amounts of money on these programs, they will have to divert funds from elsewhere and/or resort to more taxes. Perhaps we will see the introduction of more "green" taxes.

Finally, the economic consequences of our current constitutional debate should not be overlooked. Much of this debate so far has focussed on Quebec and the rest of Canada, West and East, multicultural concerns, the provinces and the central

government, and the like. But, we should not lose sight of the fact that the way we organize ourselves politically, has important implications in our ability to manage the economy.

The globalization and other forces referred to earlier will require of government the ability to respond effectively. We must be concerned, for example, that our federation does not become too decentralized lest the national government lose the ability to be an effective manager of the economy. Coping with the structural changes mentioned above will require strong national, not only regional programs. Many of the major environmental problems extend far beyond the scope or capacity of regional authorities; they will require national (and international) responses. A constitution which creates very strong regional governments and a correspondingly weak centre brings with it the risk that political responses will be too slow, and that effective action will become impossible. The movement in Western Europe, and elsewhere towards closer political integration, is largely a response to these forces.

At the same time, Canada is clearly different from region to region, in both social and economic terms. Regional governments must, therefore, possess enough power to meet local challenges that may not be common to other parts of the country. Diverse regional populations and interests should be reflected in governments' approaches to many social concerns. Striking the right balance between these competing forces may well be the greatest and most important challenge we face in the 1990's. Δ

QUEBEC 1991

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Don't Buy Tax Shelters!

Scott Wilson, CA

Is the advice contained in the title of this article too simplistic, overly conservative or an unfair generalization? Perhaps it is. But many investors, dentists included, need to be more diligent in their review of investment opportunities. Unless this "due diligence" review is conducted, the advice should be even stronger: Don't ever buy tax shelters.

Let me first define how wide I'm casting the net, or what I mean when I use the term tax shelter. Tax shelters could be broadly defined to mean any investment that offers an income tax saving in addition to the potential economic benefits. This is too broad a definition to apply to the harsh message concerning tax shelters, since many sound investments with the potential of good economic returns will also have associated tax savings.

I intend to focus more on the colloquial, or "street" definition. Here, a tax shelter means an investment opportunity which has been packaged by a promoter and where the promotional material has a very strong, almost exclusive, emphasis on the tax deductions and resultant tax savings. In addition, so as not to distract you from the golden glitter of potential refund cheques from Revenue Canada, there will be woefully inadequate disclosure of realistic financial projections. To clinch the deal the cash down payment is likely relatively small, and there could be various alleged guarantees.

There is a platitude which seems to be wrongly cast aside amidst the hype of beating the taxman: namely, don't let the tax tail wag the investment dog. It does not make economic sense to invest in a tax shelter if there is little chance of either earning income on your investment or at least recovering the amount that you have at risk, i.e. the original investment net of the tax benefits. Now, perhaps more than ever before, you should evaluate the investment potential of a tax shelter in the same way as you would evaluate any other investment. The current relevance of this advice stems from several factors.

First, we are in a recession (even though my namesake had trouble letting the "R" word cross his lips). The projected appreciation of the value of the investment, or the business projections



Scott Wilson, CA

outlined in the proposal, may be unrealistic given the state of the economy.

Second, recent tax reform measures by the federal government have severely restricted the tax benefits flowing from tax shelters. I have seen tax shelter proposals which have failed to recognize, presumably inadvertently, some of these measures.

As evidence that this message is timely, our local regional municipal government recently declared an investor fraud awareness day. This attempt to raise the awareness of the investing public was caused by a recent spate of failures of investment companies, including a large tax shelter promoter, which resulted in significant losses for a large number of investors.

There are a number of steps that an investor should take to perform the due diligence review referred to above. For many investors, including dentists, advice from independent professional advisers may be necessary.

- Assess the track record of the people directing the investment/business opportunity. What successes have they had? Have you, or others that you trust, had

past dealings with them which were successful? Are they respected in their field of endeavour?

- Assess the financial strength of these people and what impact that might have on the investment. What backs up guarantees which are promised?

- Assess your legal liability. What potential liability do you have in excess of the typically small cash down payment? Is your liability limited to your original investment, or could it be unlimited? I know of one particularly large tax shelter in Western Canada where a significant number of professionals, who were general partners with unlimited joint and several liability, declared personal bankruptcy when the venture failed.

- Assess liquidity. Is there a resale market for the investment? If not, are you willing to invest for the long term?

- Assess the value of the underlying investment or the reasonableness of the business plan. What fees are being paid to the promoter? Are they justified?

- Lastly, assess the validity of the tax benefits. The tax shelter promotional material may have a commentary on tax considerations prepared by a tax lawyer

or accountant; but there may still be major uncertainties which could jeopardize all the tax benefits. For example, an offering memorandum for a tax shelter crossed my desk last week. The investor was promised tax deductions far in excess of the cash down payment. In my opinion, the tax benefits were by no means guaranteed for a variety of reasons. The offering memorandum contained a lengthy legal analysis of the income tax considerations, but prefaced the analysis with a number of broad assumptions which dismissed the areas of uncertainty. The law firm which wrote the tax summary did not comment on the appropriateness of the assumptions. The bottom line was that crucial questions concerning the tax benefits were left unanswered and not particularly well highlighted. I wouldn't touch that deal with the proverbial three-metre pole.

Perhaps the title of this article was overly conservative. There are many good investments that do have consequential tax benefits. The title could have been "Weed Out the Tax Shelters that Stink". Δ

Scott Wilson is a tax partner with the Ottawa office of Price Waterhouse.



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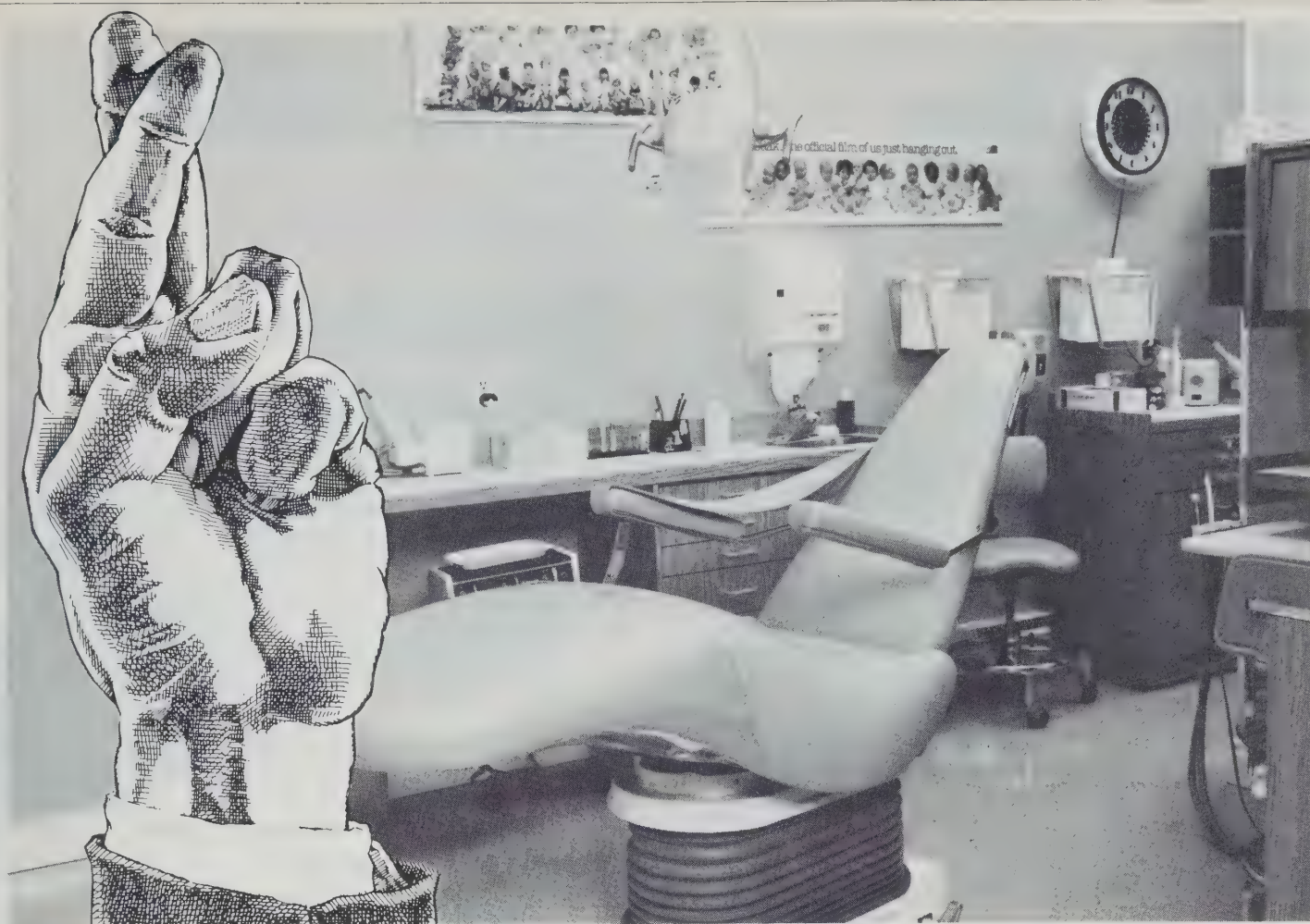
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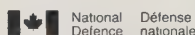
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THE SIPKOS They Practise What They Preach

by P. Ralph Crawford, BA, DMD

Dr. Bud Sipko and his wife Karin of Richmond, British Columbia, are a team, a total team, in every sense of the word — at home, at the office, at work and at play (although they would hardly represent themselves as the ideal couple). Together they have built a successful dental practice and consultancy that is envied and admired by many.

The *Journal* was anxious to learn their secret. We spent a day in their practice observing and questioning, followed by an informal dinner where the main course was dentistry. We then followed them to Winnipeg to sit in on one of their many practice management seminars. What follows is the Sipko story of success.

Bud and Karin met at the Faculty of Dentistry in Edmonton, Alberta. They married in 1968; Karin had graduated in Dental Hygiene in 1967 and Bud received his dental degree in 1969. They moved directly to Richmond, B.C., where they leased a 1850-square-foot traditional-type dental office. But Bud Sipko never was much of a traditionalist.

Bud Sipko admits he is different. In the conservative 1960's, he was one of the first in his area to have shag carpets throughout his office, to wear multi-coloured uniforms and to decorate the walls with fancy wood panelling. He knew there were other ways to practise than those taught in dental school. He travelled the country seeking guidance. Karin remarked with humour, "It was seven years before Bud and I had a holiday without a dental course."

Bud and Karin's holidays were spent in meetings listening to outstanding leaders in practice management and dental philosophy. Klein and O'Connor, Guichet, Pankey, Natham Alan Shore, Omer Reed, Avrom King, and Bob Barkley became familiar names. Team development and preventive dentistry became a way of life.

In 1975-76, Dr. Sipko listened eagerly and became persuaded of what Dr. Bob Barkley was telling the dental world:

"People get healthy when you care about them. If there is no urgency — pain, bleeding, or swelling —



Bud and Karin Sipko: can their success be attributed to their office philosophy? "We are successful if you are successful."

then patients can set their own pace. Patients can control their own dental health."

The next crossroads in Karin and Bud Sipko's life followed quickly. About 1977-78, Bud invited Chuck Sorenson from Nebraska to speak to a group of Vancouver dentists. Sorenson was associated with *Selection Research Incorporated (SRI)*, a market research company with a strong element of recruitment and selection. Bud and Karin were to learn another lesson contributing to their success: you can't win without a team!

" 'SRI's mission is two-fold', says Bud. 'Number one is the identification of recruitment and selection of talented people, and number two is an absolute desire to empower people to be heard.' "

Dr. Sipko continued, saying "The best businesses in the world are those where the people who work there feel they are being listened to. We can change the dental office through the selection of people." And it works. After the first eighteen months of incorporating the new philosophies into their office, the Sipko gross

income doubled from \$250,000 in 1979 to \$500,000 in 1981. Today it is close to a million dollars!

During the Winnipeg lecture (they give an informal, stand-up, back and forth spiel) Bud and Karin outlined four premises for conducting their dental practice.

1. People must take responsibility for themselves.

With emphasis Karin says, "The fundamental belief Bud and I have in our work is that we really must help people to become excited and empowered to take responsibility for themselves and their dental health."

They also transfer that responsibility to their staff. The Sipkos encourage continuing education for their staff and they too have the choice to say "yes" or "no" to the patient's treatment modalities.

2. Dentistry is absolutely discretionary (except in pain, bleeding, and swelling).

"This is much different than medicine," says Bud. "Less than 1% of what we do is mandatory. We use a lot of 'would you like to' rather than 'you need to' in guiding clients to make choices."

The Sipko office routinely refers to 'clients' rather than 'patients', and when questioned on the semantics, they indicate that patients are often sick people whereas dental clients are seldom ill.

3. Develop client and staff relationships: remember, people don't sue their friends!

From the outset their clients are told that the office is committed to quality. "We tell people, 'We are successful if you are successful.' If it isn't right, please tell us." Bud is emphatic. "The real issue in dentistry is to have people take us — dentistry — seriously and you can't do that if you don't build solid relationships."

4. Improve self-esteem. Make people feel better about themselves.

It was explained that the Sipko self-esteem premise has to work throughout the whole office — Bud and Karin, the

staff and the clients. It doesn't work if it's one-sided or mere flattery. "That is why we start our staff meetings off by sharing our successes," says Karin. "We need to be proud of what we are doing."

STAFF IS THE KEY

A visit to the Sipko office quickly indicates that staff relationships are different than in many other offices. Two things are immediately evident. One is that a staff of 10 members (not all full-time) is quite large considering Dr. Sipko only practises three days a week (the balance of his time is allotted to consulting work with SRI). The second evident element is longevity of employment — the Sipkos proudly introduce visitors to staff with 14, 12, 10, and 7 years' association.

"The absolute key is staff", says Bud. "When I first started hiring I used to mainly check past work experience. SRI taught me there is much more involved than basic technical skills." Dr. Sipko points out three basics:

- Recruit and hire **very** carefully. You require staff with people skills — rapport, good self-concepts, empathy. Dentists are generally introverts so we require our staff to be stimulators and relaters.
- Regular staff meetings are mandatory. The staff must be involved. The dentist cannot sit back and tell staff what is wrong. Staff must be drawn out in order to trust and to participate. "If the dentist is confronted with arm-crossed silence then you can bet that anger is not far away," says Dr. Sipko.



The reception area — like your living room complete with fireplace.

- Meet one-on-one with staff members. Find out what is important to them and their work — really listen. Help them to grow and develop in the practice.

In the Sipko office, staff participate in the successes and financial rewards. Each staff member is aware of the office income and expenses **as well as** each other's salary — including Bud and Karin's. Karin Sipko told her Winnipeg audience, "Reward is a great stimulator. People grow if their talent is recognized. In our office we have a compensation package — if we are up 25% so is the team."

"We recommend a formula that is

guaranteed to increase office production," says Karin.

$$T \times (R^1 + E + R^2) = P^3$$

These components represent the Management Philosophy

- T = talent
 R¹ = relationship
 E = expectation, which must be appropriate for the talent. The worst thing you can do is try to get a person to do something they can't do.
 R² = reward, also appropriate to the talent
 P³ = per person productivity

THE NEW CLIENT/PATIENT

If staff is the key then the new client has to be the lock that secures success. "The biggest change in a practice will be how you treat a new patient," says Dr. Sipko. He concludes emphatically, "And I like to meet about 20 new people a month!"

To verify that line of reasoning we presented Bud and Karin with a hypothetical patient phoning the Sipko office for the first time: "What if I am a new patient who phones your office and tells the receptionist I am new in town and already overdue for my regular six-month check-up and cleaning?"

The patient is asked, after recording the basic formalities of name, address, referral, records, etc., if they would reserve up to **two hours** of time for the first appointment. The *Journal* Editor, probably like many practitioners, wondered what happens during those two initial hours. We



The office greeter: "It would be most helpful if we could spend time getting to know you."

had Karin and Bud describe a typical first-time phone call and visit.

Patient: Wow, two hours! What would you do during that much time?

Answer: At this point we are not entirely sure, but it will take us that long to get to know you and to figure out how to help you best.

Patient: But two hours? What's that going to cost me?

Answer: It's hard for us to know because we don't know what we'll be doing with you but if it's important for you to know I can suggest anywhere from \$25.00 to \$250.00. It is really a wide range.

The *Journal* was told that very seldom do patients refuse that first appointment. They seem to sense that there is genuine concern and care within the office. Many times the patient has been referred by another patient from the Sipko office and has some idea of the routine.

From the moment the patient arrives at the reception area — it resembles a living room complete with fireplace — they are made to feel at home. The receptionist is often referred to as a "greeter". The patient is taken on a tour of the entire office and introduced to staff members.

The next step for the new patient is a detailed, taped interview. This is conducted by a hygienist, in a special interview room, and consists of about 20 questions starting with the patient's first dental experience. Many questions are simple and basic, but revealing, particularly in reference to the patient's expectations and 'responsibility factor'.

What is a good dentist like?

How important is your appearance to you?

In our work together what would you like to accomplish?

How important is it for you to have the best?

Who should decide what should be done in your mouth?

Dr. Sipko commented, "Few clients have ever had a dentist or a staff member sit down and ask what **they** want. I find the best thing to do is to slow down and listen; to find out what they really want in their mouths. They need to know we are concerned about quality so they can expect quality."

"People often come to us with guilt, anger and frustration — some are depressed. They expect to be diagnosed with a disease and told what the cure and the cost will be. We have changed our approach.



Birthday time in the Sipko office. "You can change the entire dental practice by the proper selection of the people working there."

We say, 'let's build a plan, a model, at a speed that works for you. We won't attempt the second rung until the first has been satisfied. If it takes 10 years, 15 years, okay; you choose your pace.' "

Most often, during that first two-hour appointment, Dr. Sipko may only see the patient for a total of ten or fifteen minutes. The hygienist conducts the office tour, the interview and charts a detailed record of the oral cavity. Sipko will conduct an initial examination and occlusal screening and then prescribe necessary radiographs and study casts.

The patient is never told at the first appointment what is going to be done because "We don't know," says Dr. Sipko. Approximately a week later, Dr. Sipko, with complete records, meets with the patient in the interview room — never the operatory.

"We never write down treatment recommendation for the patient," he says. "We develop that with them. Our true objective is for the new client to really think about their mouth. To think about the questions we've asked them, to relate what is important to them, and what they would like to happen. We want them to paint a clear picture of what their future could be. Then we know that we can plan the dentistry that best fits their desires. Our objective is to help people feel better about themselves."

Karin and Bud Sipko's 'practising what they preach' must be working. If there was a downside to their business the *Journal* couldn't detect it. They and their staff truly appear to love what they are doing and the practice has all the indicators of success.

One year ago the Sipkos left the 1,850-square-foot office and moved into their

own 13,000-square-foot building. Their dental office occupies 3,800 square feet and the remainder is 80% leased. Increased space, staff and efficiency contributed to a 33% increase in productivity in the last year — without any increase in fees.

Selection Research Inc., the consulting business, is also successful. Over the last ten years Bud and Karin Sipko have worked with 1,500 dental offices from Florida to Alaska. Presently, *SRI* is actively involved in over 200 dental practices.

When the *Journal* asked, "Do you have an ideal practice?", Dr. Bud Sipko summed up best his and Karin's involvement with dentistry:

"Is there such a thing as an ideal practice? I think not. We certainly have our failures too. But I think we have an **exemplary** practice:

- we provide quality care to the best of our abilities;
- we have a staff that love working here;
- our patients appreciate us."

The *Journal's* last comment — who could ask for more? Δ



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Protective Mouthguards and Sports Injuries

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INTRODUCTION

Protective mouthguards were first developed over seventy years ago for use in the sport of boxing and consisted simply of small pieces of rubber held in place by clenching the teeth together (Chapman, P.J., 1983). From such primitive beginnings the protective mouthguard has evolved largely in response to the high incidence of dental injuries occurring in the sport of football. Today's protective mouthguards are characterized by a number of different styles with comparatively superior protective qualities and athlete acceptance than those of years past. A current example would be the Australian developed bi-maxillary mouthguard which is currently being used by a number of players on the University of Saskatchewan Huskie Football team.

Performance Considerations

In 1962 a mandatory mouthguard rule was adopted in the U.S.A. by the National Football Alliance Rules Committee which stated that "each player shall wear an intra-oral mouth and tooth protector which includes both an occlusal (protection and separation of the biting surfaces) and a labial (protection of the lip) portion." The committee also recommended that the mouthguard be: (1) constructed from a model made from an impression of the athlete's teeth or (2) constructed and fitted to the individual by impressing the teeth into the mouth and tooth protector itself (AAHPER, ADA, 1967). According to these recommendations the protective mouthguards of choice would be those that are custom fabricated even though restraints, usually financial, often prevent the universal use of the custom fabricated protector. In such cases the mouth formed protector is considered adequate if it is properly fitted by a dentist. Such measures of oral protection



C.T. Lee-Knight, DMD

have proven successful in reducing the incidence of oral injuries in North American football to 0.4% of all reported injuries. These statistics were influential in persuading the Canadian Amateur Football Association to adopt a mandatory mouthguard policy in 1976.

The American Academy of Sports Dentistry has advocated the use of both the custom-made and the mouth-formed mouthguard but has declared that typical stock mouthguards are not acceptable. The mouth-formed mouthguard is relatively inexpensive and can be replaced more frequently over time. It can also be remoulded quite well which is advantageous in refitting growing children when the dentition is in a period of dynamic change. The length of useful life of any mouthguard is determined by the rate of occlusal wear but it is generally agreed that mouthguards should be replaced approximately every two years due to the loss of material resilience and the deterioration of specific physical properties. The actual state of individual oral hygiene may, however, necessitate a more frequent replacement schedule. For example, De Wet (De Wet, F.A., 1981) reported frequent fungus growth in those mouth-formed protectors that had not been fitted

by a dentist which likely meant that the recipients had not received adequate educational instruction on the care and hygiene of mouthguard use. It seems reasonable then to suggest that dentist fitted mouth-formed protectors be provided for young athletes up to 13 or 14 years of age, up to which point the dentition is in a continual phase of dynamic change. However, once permanent dentition is complete the custom fabricated mouthguard would become the recommended choice of oral protection.

According to Davis and Knott (Davis, G.T. and Knott, S.C., 1984) the age group between 6 and 12 years is at the greatest risk of dental injury even though only one-third of the reported dental injuries were a result of participation in contact sports. It has been estimated that contact sport participants have a 10% chance of oral injury each season (Moon, D.G. and Mitchell, D.F., 1961) and a 33-56% chance of injury at some point in their competitive careers (Clegg, J.H., 1969). Women may be even more susceptible than men to dental injury since it has not been traditional for them to employ any form of mouth protection. Olvera (Olvera, N., 1989), in a survey of 5,100 female basketball players, reported an oral injury rate of 7.48% which represented a rate 15 times greater than that reported for men's football. The specific dental injury rate of 1.96% also exceeded the 0.5% rate reported for male football players.

Anatomical Considerations

A custom manufactured mouthguard provides a significant degree of protection to the following areas (Wood, A.W.S., 1972):

Dr. Lee-Knight is in private practice in Saskatoon and is a Clinical Instructor in the Department of Diagnostic and Surgical Sciences at the University of Saskatchewan. He is also an active member of the Academy for Sports Dentistry.

1. to the anterior teeth in the case of frontal blows.
2. to cusp tips, occlusal and incisal surfaces and restorations in case of blows below the mandible which force it into sudden and violent contact with the maxilla.
3. to the various associated soft tissues such as the lips, cheek and tongue.
4. to the head of the condyle, joint capsule and disk in the case of sudden forces to the mandible.
5. to the body of the mandible by absorbing those forces which could cause fractures.
6. to the cranium by reducing the various concussion producing forces directed through the mandible to the cranial case.

The force produced by a blow to the mandible is transmitted to the skull and brain via the mandibular condyles which are located immediately adjacent to the middle cranial fossae of the skull (Chapman, P.J., 1983). The intra-oral mouthguard separates the occlusal surfaces of the dentition by approximately 2 mm. and, in so doing, rotates the head of the condyle downward and forward. This provides some degree of separation between the condyle and the most posterior, superior aspect of the glenoid fossae. The slight change of position also reduces the direct transmission of the various impact forces through the mandible to the cranial case. Based on cadaver experiments, Hickey et al. (Hickey, J.C., et al., 1967) have shown that this repositioning by means of a mouthguard reduced the forces transmitted from the mandible to the skull by 50%. Further, Gurdjian (Gurdjian, E.S., et al., 1961) has stated that the primary cause of concussion is shear stress which is produced whenever dynamic pressures are set up in the cranial cavity. The magnitude of this shear stress depends on the magnitude of the pressures produced and its time duration. Jerge (Jerge, C.R., 1972) reported no concussion injuries for University of Connecticut football players wearing a custom-fitted mouthguard while Stenger et al. (Stenger, J.M., et al., 1964) also noted a significant decrease in the number of concussions and neck injuries for the Notre Dame football team after the players were fitted with custom-made mouthguards. The mechanism of injury is also related to the acceleration of the head as frontal impacts to the chin result in an anterior-posterior force transmission and a linear acceleration of the brain while blows from below the mandible cause

some of the forces to be redirected toward the upper facial skeleton which results in angular acceleration of the brain. Blows from the side of the mandible result in a combination of linear and angular acceleration (Chapman, P.J., 1983). In the case of ice hockey the majority of injury causing blows tend to occur from either the front or side while in football the injury causing blows generally come from below (Wood, A.W.S., 1972).

Current intra-oral mouthguards have proven to be successful in reducing the incidence of injury from frontal blows and blows from below; however the mandible, and in particular the temporomandibular joint, remained relatively unprotected from both frontal and oblique blows (Niinimaa, V., et al., 1981) which could result in mandibular fractures (usually in the condylar neck region), condylar dislocation, disk displacement or concussion. These problems are overcome with the use of a bimaxillary type mouthguard. De Wet (De Wet, F.A. and De Muelenaere, J.J., 1984) advocates the use of two separate mouthguards for the upper and lower teeth while Chapman (Chapman, P.J., 1986) recommends the bimaxillary style. In either case protection is provided to both the hard and soft tissues as well as to fixed orthodontic appliances if they are worn during competition.

The bi-maxillary mouthguard was designed in the early 1980's and its design covers both the dental arches with the mandible fixed at a predetermined maximum breathing position which allows the athlete to maintain adequate oral ventilation during strenuous exertion (Chapman, R.J., 1986). In addition the mandibular condyle is rotated further anteriorly within the glenoid fossae to a position that reduces mandibulocranial force transmission and makes the individual less susceptible to concussion type injuries. Further, the bimaxillary design allows the mandible to be stabilized in a position which increases the degree of protection against fractures and temporomandibular joint capsule injuries.

It is important to recognize that the bimaxillary mouthguard, like all standard mouthguards, requires an initial period of adaptation in order for the athlete to feel completely comfortable with the slight modifications in ventilation (Hayes, D. et al., 1977) (Luke, R. et al., 1982) and speech adjustments that occur (Dennis, C.G. and Parker, D.A.S., 1972). These adjustments are easily and quickly overcome and the superior degree of oral protection certainly justifies the use of a custom-fitted bimaxillary type mouthguard.

Bimaxillary Mouthguard Fabrication

The bimaxillary mouthguard construction begins in a manner similar to that of a standard maxillary custom-fit mouthguard. The custom-fit protector is completed by vacu-forming a laminate of either polyvinyl acetate-ethylene copolymer (PVAC-PE) or polyvinyl chloride (PVC) over a model of the maxillary arch. This method of fabrication provides an excellent individual fit with retention provided by close adaptation to the teeth and to the undercuts of the alveolar bone. However, one of the drawbacks of the standard maxillary design is the athlete's complaint of difficulty in breathing, particularly when there is a nasal obstruction. Nasal obstructions may be chronic or acute such as when a blow is received to the nasal region. The bimaxillary design allows airway patency with the mandible in a supported, protected position. The United States Olympic Training Center Dental Division has modified the standard custom mouthguard in order to counter this breathing problem. This modification involves cutting and adapting blank strips of mouthguard material to the posterior occlusal surfaces from the cusp to the distal of the second molar. Once these strips are heated with an alcohol torch, the routing technique for a vacu-formed custom mouthguard is followed. This extra 2-3 mm thickness of material in the posterior region results in an anterior airway space which may be further increased by thinning the lingual of the anterior material. This modification, however, does not take into account individual variations in mandibular position during breathing at maximum exertion, whereas the bimaxillary mouthguard does.

At rest breathing normally occurs through the nose, with a respiratory minute volume (RMV) of approximately 6 l/min. Under moderate to heavy exercise conditions the RMV may increase to values over 100 L/min., most of which is primarily oral airflow. As part of this oral breathing pattern the freeway space increases as the mandible is lowered into a slightly open position. This maximum breathing position has been simulated by Chapman, (Chapman, P.J., 1986) and verified during this study by means of a kinesiograph. To determine the maximum breathing position the patient is seated in an upright position with a swimmer's nose clip positioned to occlude the nasal passage. The patient is then asked to begin the following cycle: an inspiratory/expiratory phase of 5 seconds duration

followed by a period of apnea with the mouth closed. These periods of apnea should last 10 seconds following each of the first 2 exhalations, 15 seconds following the 3rd and 4th exhalations and 20 seconds following the final 2 exhalations. This entire cycle is repeated after a 2 minute rest period with the nose clip in place. The midline interincisal distance is measured with a Boley gauge at the conclusion of the second cycle. The reading on the Boley gauge is then used to register the jaw position with blocks of Aluwax, or some other suitable material, placed over the occlusal surfaces of the posterior teeth. These occlusal registrations are used to articulate the individual's models for mounting on a fully adjustable articulator.

Prior to mounting the models, custom mouthguards are fabricated for each arch, as described by the U.S. Olympic committee (U.S.A. Olympic Committee, 1986). The maxillary arch utilizes a laminate with an incisal insert while the mandibular laminate does not require this insert. The mandibular protector is trimmed sufficiently to allow for 1.5 mm of exposure of the incisal edges from cuspid to cuspid. The resulting margins are thinned and smoothed to allow for a greater breathing space. Chapman (Chapman, P.J., 1985) advocated a flasking method to fuse the mouthguards together. Although the flasking method reports superior long term results it is a very expensive and time consuming technique. Heat fusing is preferred as it requires no special equipment or training, or a large amount of time. The occlusal surfaces of each mouthguard are heated with a flame and hot spatula until they will adequately fuse to one another when the articulator is closed to the maximum breathing position. Additional flaming is done on the buccal and lingual surfaces to ensure that an adequate seal has occurred. Although this joint may split with normal use over time, it is easily repaired with a heated spatula. Like other advanced mouthguard designs, the bimaxillary mouthguard should last 2-3 years with adequate maintenance and hygiene.

Summary

In summary the advantages of providing custom-fitted mouthguards for athletes, especially those involved in contact sports, has been discussed along with the methodology of construction. Because of the apparent lack of negative effects on physical performance and the superior protective characteristics of custom-fitted mouthguards, it seems logical to recommend their use in the competitive sports arena. △

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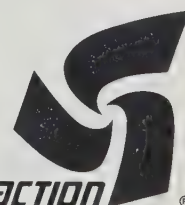
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Everybody's now into activity
and healthy eating, doggone it!
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Make your move.



PARTICIPACTION

Root Amputation and Hemisection

William J. Kost, DDS, MS, FRCD(C)
James E. Stakiw, DMD, Dip. Perio., PhD

Introduction

There are many reasons why a patient and dentist might consider root amputation or hemisection as valid treatment alternatives. Simply in keeping with the basic philosophy of conservative dentistry dedicated to retaining as much of the natural dentition as possible, these procedures must become part of the treatment repertoire available to the dentist.

Many times, an endodontically/periodontally involved tooth may be saved to stand among its neighbours rather than following the alternative route of extraction and subsequent involvement of two neighbouring teeth with prosthodontic preparation.

Bridge preparation and delivery, however, can be associated with restorative difficulties, subsequent pulpal inflammatory involvement and/or home oral hygiene difficulties and related periodontal problems.

In addition, once a tooth is lost, the remaining teeth may not have sufficient integrity to support the usual conservative bridge configuration. Perhaps instead of extraction of the offending tooth, a solution to that specific problem may lie in the judicious application of root amputation and/or hemisection procedures.

One also has to consider that the cost of restorative work is escalating. Once a tooth has received a gold crown and perhaps also an endodontic filling, the patient is attached to the tooth by financial considerations and not simply the periodontal ligament. Sometimes, the patient may be more amenable to hemisection or root amputation procedures rather than extraction of his/her very large investment and replacement with even more expensive bridge protheses.

1. Differential Diagnosis

A) *Is it an endo-perio lesion?*

One diagnostic key lies in periodontal probing. A single discrete sulcular defect possibly located along a single line angle of the tooth and a three walled bony defect may indicate a lesion which originates at the apex. This may be confirmed by periodontal probing and establishing acceptable sulcus depth elsewhere on the tooth and in the mouth generally. Also,

tracing the draining sinus tract with a gutta percha cone is helpful. The tooth will test non vital to cold, hot, and electric tests. This three walled defect can respond to endodontic treatment alone and can heal.

B) *Do we have a defect of periodontal origin?*

In this case we have a "no walled bony defect" which will not respond to straightforward endodontic treatment or endodontic periapical surgery, or even periodontal therapy or surgery alone. No matrix or regenerative potential exists along which healing of periodontal ligament and bony fill-in can occur.

2. Identification and Selection of Candidates for Hemisection or Root Amputation

A) A "periodontal or periodontal involvement" is identified by the presence of an isolated no-walled periodontal defect involving one root and judged to be non-responsive to periodontal treatment and not accessible to patient home oral hygiene procedures.

B) A periodontally or periodontally involved key tooth, either free standing, or perhaps mid-dentition with neighbouring teeth unable to support fixed or removable bridge work.

C) A single root of a molar with a vertical fracture or having a non-restorable carious lesion would suggest root amputation or hemisection.

D) A periodontally or periodontally involved key tooth already incorporated in existing fixed bridgework or supporting a removable partial upper denture or partial lower denture.

E) The proposed remainder of the root system must be adequate to survive masticatory forces and be accessible to home oral hygiene procedures.

F) The proposed remainder of the root must be restorable to allow sealing of the pulp anatomy from the ingress of contaminants to prevent

recurrent caries and future periapical breakdown.

3. Planning the Procedure

A) Assess the periodontal integrity of the quadrant and opposing dentition and identify the isolated no-walled bony defects.

B) Assess the pulpal vitality of the neighbouring teeth in the quadrant.

C) Assess the root canal anatomy and perform adequate root canal filling procedures to seal the proposed remaining roots against the ingress of oral contaminants.

D) Determine where the hemisection or amputation will traverse the tooth structure and the pulp chamber, so that at the time of resection a cleanly-finished cavo-surface margin can be created on the remaining root surface. This preplanning may help to avoid a difficult matrixing situation.

E) Plan ahead for intra sulcular flap procedure. Make sure that vertical incisions of flaps cross over intact cortical bone and not over the root extraction site defect.

F) Plan ahead to reduce the size of the occlusal table. If the surface area of the root remaining is less than half of the original root area it may not be able to support the original occlusal loading. Think ahead about restorative dentistry consequences both from occlusal and plaque control perspectives.

4. Performing the Procedure

A) Prior to the actual resection, the root canal treatment should be completed and the coronal restorative material should extend into the pulp chamber and possibly into the root canal orifices for some distance. This allows for a cleanly-resected amalgam: cavo-surface margin interface.

B) Prophylaxis, root scaling, and curettage should have been performed to control acute inflammation in the area. Oedematous tissue should be under control to allow assessment

of how the healed tissue will lie to allow home oral hygiene procedures.

C) Block or infiltration anesthesia, using 2% Xylocaine with epinephrine 1:50,000 with supplemental buccal and labial infiltration to allow adequate hemostasis.

D) Lay the flap open as required, *extending it widely* to avoid suturing and closure of the vertical incision over any periodontal or surgical bony defects.

E) Resect through the crown and toward the bifurcation area using a high speed burr (e.g., No. 557 Hi Speed long-shank). It may be helpful to stop short of the bifurcation, and insert the burr inferior to the bifurcation and draw it back up towards the proposed resection plane through the crown structure.

F) Once the part of the crown and root are removed and are free of the main body of the tooth, but prior to the removal of the root tip from the socket, irrigate adequately with sterile saline to remove bone chips and amalgam debris which might interfere with healing of the socket. Amalgam debris results in fibrous rather than bony healing.

G) Elevate or extract the unwanted portion of the tooth.

H) Smooth and contour the remaining root surface and curette and scale the newly-cut root surface to assure a smooth surface which will allow adequate home oral hygiene procedures and minimize plaque deposits.

I) Adjust and minimize the occlusal table.

J) Irrigate and debride the extraction site once more and reposition the flap.

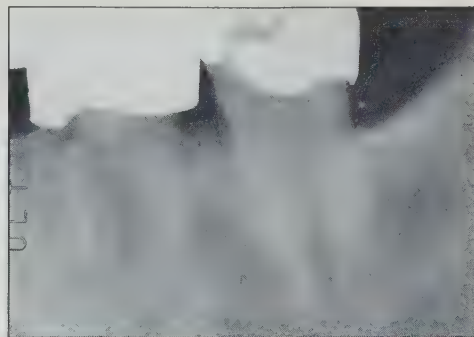
K) Prescribe adequate anti-inflammatory/analgesic, (i.e., 20 tablets Motrin 400 mg. 1 tablet q6h) and antibiotic (i.e., 20 tablets penicillin V 300 mg. 1 tablet q6h) medications as indicated.

L) Advise patient regarding post surgical care such as application of ice pack, head elevation, minimization of activities, and hot salt water rinses 24 hours after the procedures.

5. Case Histories

Case #1

A sixty-five-year-old gentleman presented with a percussion sensitive tooth #36 which was supporting a five-year-old bridge extending from 33 to 36. The gentleman was of limited means and did not wish to lose



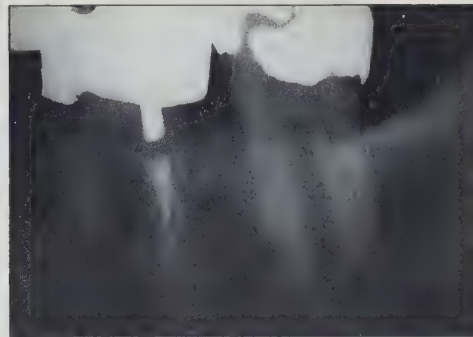
Case #1, fig. 1



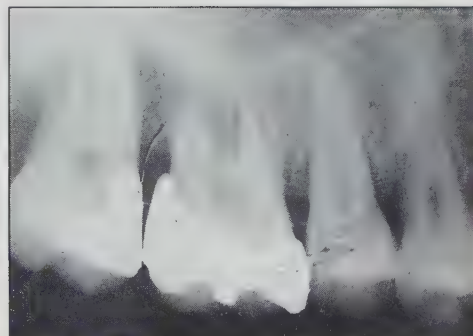
Case #2, fig. 1

the bridge. Investigation revealed that a lesion existed at the root tips of #36 but the mesial aspect of #36 was carious and unrestorable and the canals were calcified and non negotiable (see Case 1, **Figure 1**).

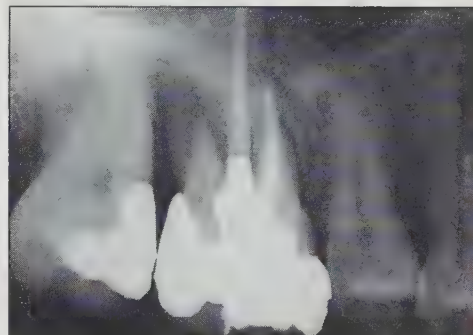
It was decided that the distal root would be endodontically treated and the mesial roots would be hemisected from under the bridge. Using mandibular block anesthesia and buccal and lingual infiltration, endodontic root canal filling of the distal root was performed. The gutta percha was vertically condensed a few millimeters into the orifices and the chamber was cleaned of cement with an alcohol pellet. Access into the region of the mesial canals was provided to ensure that caries had not invaded up and under the crown to weaken the crown's retention. An amalgam restoration was placed to extend into the orifice of the distal root. The remainder of the pulp chamber and the access into the mesial root orifices was also sealed with amalgam (see Case 1, **Figure 2**). An intrasulcular flap with a vertical incision 5 mm mesially of the mesial roots was reflected. A highspeed burr was inserted into the bifurcation area with an upward and mesially directed motion. The burr was run along the underside at the margins of the gold abutment crown, to create a smooth plaque-resistant, easily cleaned environment.



Case #1, fig. 2



Case #2, fig. 2



Case #2, fig. 3

Case #2

A forty-seven-year-old woman had been undergoing regular periodontal therapy and maintenance with a periodontist for seven years. The defect along the entire disto-buccal aspect of tooth #16 had progressed to the point where a no walled bony defect existed from the buccal bifurcation all the way around to the area under the interproximal contact point. Tooth #17 also demonstrated severe horizontal bone loss (see Case 2, slides 1 & 2). Tooth #16 and #15 tested vital. Endodontic obturation of the mesio buccal and palatal roots of #16 was completed and amalgam was packed into the orifices of the mesio-buccal, the palatal and the disto buccal canals (see Case 2, slide 3). The intra sulcular full thickness flap was designed to extend mesially to tooth #15 and distally to tooth #17. The flap was reflected to demonstrate the severe bone loss on both #16 and #17 (see Case 2, slide 4). A 557 high speed



Case #2, slide 4

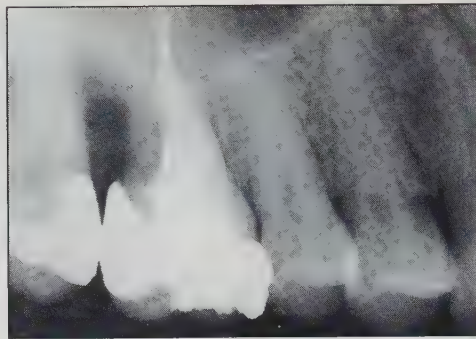


Case #2, slide 5



Case #2, slide 6

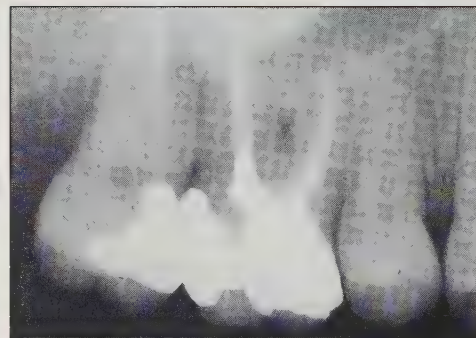
burr was used to establish the main line of resection to remove the disto buccal root from the main body of #16. Copious saline irrigation was used to debride the area (see Case 2, slide 5). The disto-buccal root was elevated out of its socket and the surface of the resected remaining tooth was finely smoothed and the cortical labial plate was curetted to create smooth cleansible surfaces along the disto buccal aspect of the remaining crown and to create a smooth bony base over which the flap would be replaced. This resection cut across the originally-placed amalgam which extended into the orifice of the disto-buccal canal and resulted in a smooth cavo-surface finish (see Case 2 slides 6 & 7). The flap was replaced and sutured with five black silk sutures (see Case 2, slide 8). One-year recall examination demonstrated some bony fill along the disto buccal aspect of #16 and no further degeneration of the common lesion between #16 and #17 (see Case 2 slide 9).



Case #2, slide 7



Case #2, slide 8

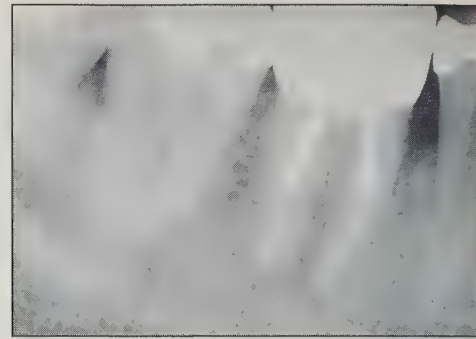


Case #2, slide 9

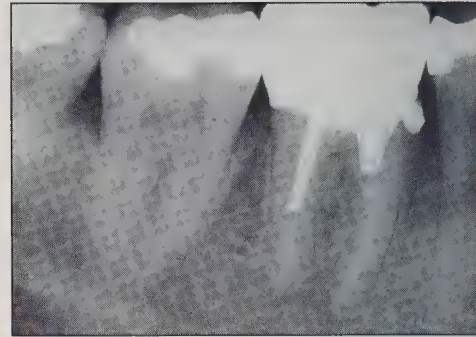
This served to separate the mesio-buccal and mesio-lingual roots from the remaining bulk of tooth structure. A smooth contour running along the mesial aspect of the distal root continued under the abutment crown. The cortical plate of bone was removed from the labial aspect of the mesial root system. The mesio-buccal and mesio-lingual roots were elevated buccally and occlusally to remove them from their socket. The area was irrigated with sterile saline and the rough edges of cortical bone were curetted and smoothed. The flap was replaced with three gut sutures and the patient was released with an ice pack and prescription for Ibuprofen: 400 milligrams, one tablet every 6 hours for three days.

Case #3

A thirty-seven-year-old gentleman complained that in spite of endodontic treatment of tooth #46, five years ago, he was plagued by recurrence of a draining sinus tract along the mesio-

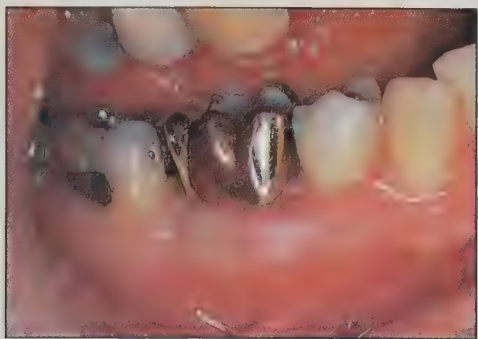


Case #3, slide 1



Case #3, slide 2

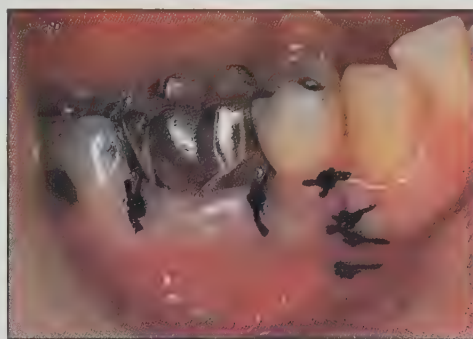
buccal aspect of the tooth. An access opening was made through the existing gold crown to assess the floor of the pulp chamber and it was determined that the mesial aspect of the tooth had a vertical fracture. The orifices of the mesio-buccal and mesio-lingual roots were opened up with a #6 Gates Glidden burr and the entire coronal access was sealed with amalgam condensed down into the mesio-lingual and mesio-buccal canal orifices (see Case #3 slides 1 and 2). Examination of the periodontal sulcus revealed a mesio-buccal line angle defect 10mm probing depth, where the draining sinus tract usually recurred (see Case 3, slide 3). Reflection of an intrasulcular full thickness flap was performed under mandibular block anesthesia with supplemental buccal infiltration with Xylocaine 2% with epinephrine 1:50,000. Upon reflection of the flap, the bony defect along the mesio-buccal of the root became quite evident (see Case 3, slide 4). The buccal plate of bone was removed with a high speed 557 burr and it was evident that the root had been fractured (see Case 3, slide 5). The 557 burr was used to resect the fused mesio-buccal and mesio-lingual root system by first applying the burr at the mesio-buccal-gingival line angle and working the burr toward the bifurcation region (see Case 3, slide 6). After the mesial root systems were resected from the remaining main body of the tooth, the resection



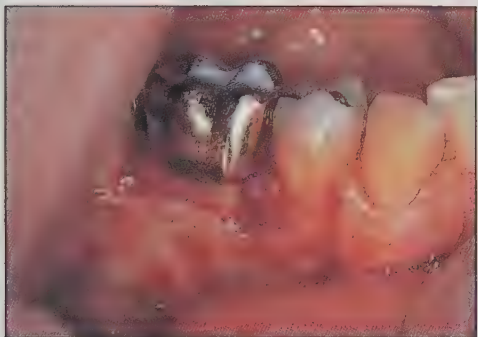
Case #3, slide 3



Case #3, slide 5



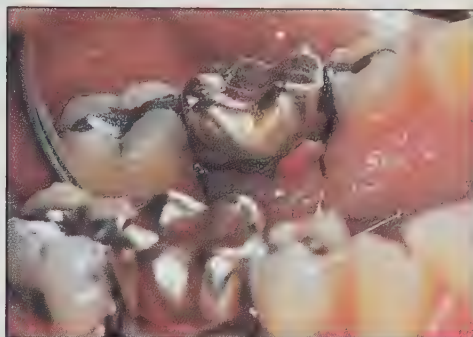
Case #3, slide 8



Case #3, slide 4

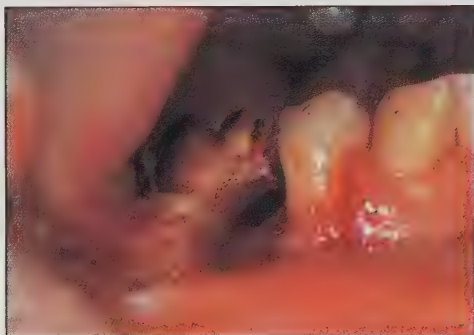


Case #3, slide 6

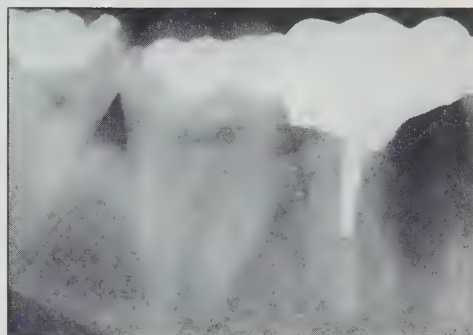


Case #3, slide 9

line was irrigated with copious amounts of sterile saline and the root system was elevated out coronally and buccally (see Case 3, slide 7). The flap was sutured in place with six black silk sutures and the patient was released with prescriptions for anti-inflammatory and antibiotic medication (see Case 3, slides 8 and 9). A post surgical radiograph taken just prior to suturing of the flap revealed that no amalgam or gold debris had been left in the extraction site prior to closure of the flap (see Case 3, slide 10). Δ



Case #3, slide 7



Case #3, slide 10

59,392

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RINGETTE
PLAYERS



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PARTICIPACTION

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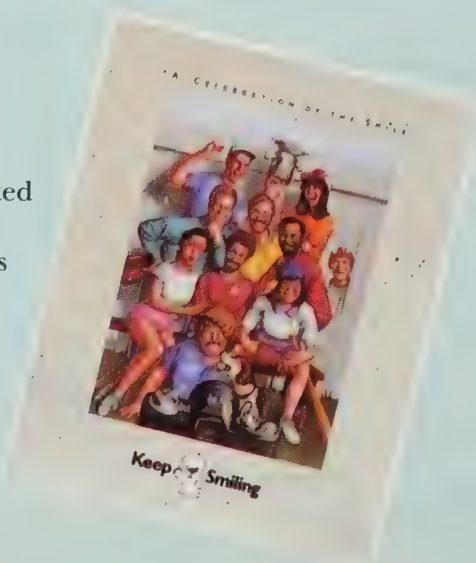
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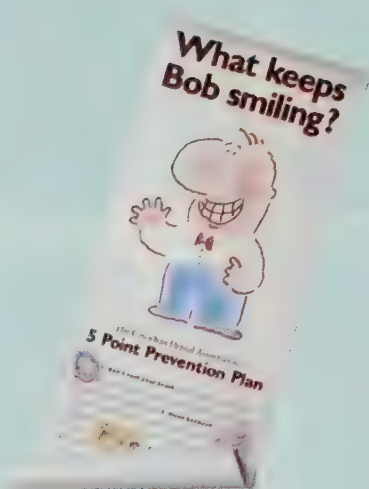


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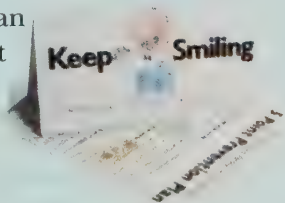


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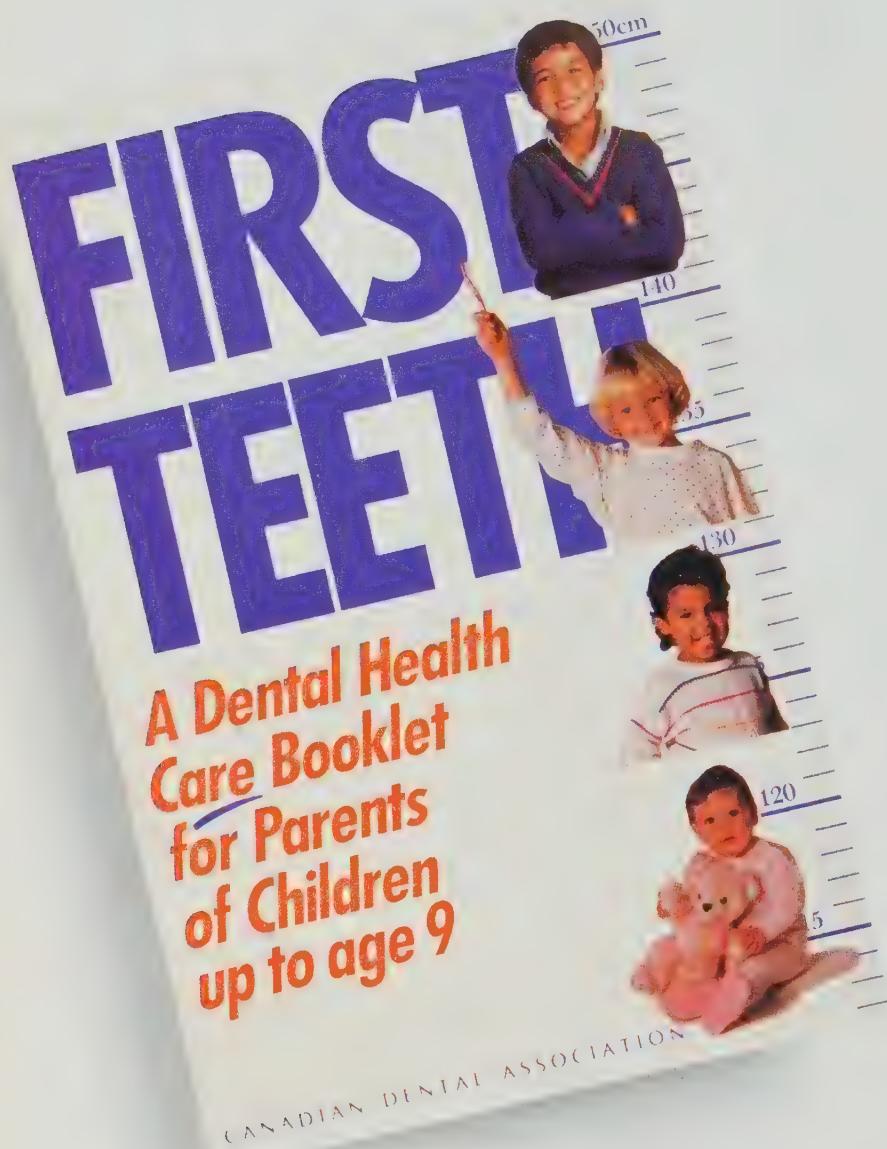
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DENTAL HEALTH
Good For Life

La vérité sur le jus, tout le jus et rien que le jus

L.Z.G. Touyz
Département de Médecine Orale de Périodontologie
Université du Witwatersrand

Les jus de fruits sont promus comme des aliments « naturels » mais un coup d'œil plus rapproché sur les jus de pommes et d'oranges produits commercialement, du point de vue dentaire révèle que ces jus contiennent des acides qui endommagent les dents.

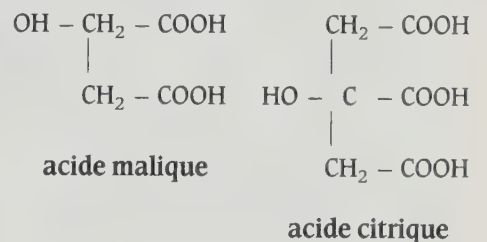
La fabrication de jus de fruits a été développée à l'origine pour utiliser les excédents de fruits, mais, étant donné que cette fabrication facilite aussi la distribution sur le marché et la consommation de fruits, elle est devenue une industrie bien établie et en expansion. La production mondiale de jus de fruits a été multipliée par 10 au cours des trois dernières décennies. Aux États-Unis, plus de deux tiers de la récolte d'agrumes est transformée en jus tandis qu'en Europe du Nord et au Canada c'est la production de jus de pommes qui domine. La consommation de jus de fruits frais au Canada est très générale et en augmentation annuelle. En tout la production mondiale de jus dépasse 6 milliards (6 000 millions) de gallons par an ($2,7 \times 10^{10}$ litres) tandis que la seule production de jus de pommes dépasse 200 millions de gallons (environ 9×10^8 litres) chaque année¹. En Afrique du Sud, l'industrie de production de jus s'est également développée. En Afrique du Sud, plus de 8,5 millions d'agrumes et plus de 4 millions de pommiers produisent d'énormes récoltes de fruits frais qui font prospérer l'industrie du jus et fournissent annuellement plus de 55 millions de litres de jus d'agrumes et plus de 25 millions de litres de jus de pommes². La fabrication de jus étend la saison de consommation de fruits et aide à égaliser l'approvisionnement d'année en année. Les jus de différents fruits sont souvent mélangés pour produire sur le marché un large éventail de produits et la consommation de jus continue à augmenter chaque année. La corrélation de circonstances entre la consommation excessive de fruits frais accompagnée de ravages dentaires cliniquement détectables (attrition — abrasion — érosion et carie) a été exposée clairement et de façon répétée^{3,4,5,6}.

L'érosion est la perte de substance dentaire causée par une action chimique mais non bactériologique. De récentes recherches

soutiennent l'idée que des aliments et boissons contenant des acides en contact avec les dents pour des périodes plus ou moins longues produisent la décalcification et finalement l'érosion de la dent^{8,9}. La plaque elle-même n'offre pas de protection car elle forme, à partir des substrates de sucre, suffisamment d'acide pour décalcifier l'émail¹⁰ et la plupart des fruits ou leurs jus ont un pH assez bas pour causer la dissolution de l'émail^{11,12,13,14,15,16}. Un pH de 5 à 5,5 est considéré comme étant le pH critique auquel l'émail se décalcifie et il a aussi été démontré que la décalcification peut avoir lieu dans un milieu non acide en présence d'anions critiques, lactiques ou maliques^{18,19}. Le pH des jus d'agrumes s'étend de 1,9 à 3,6¹⁶ et celui des jus de pommes de 3,2 à 4,2²⁰.

Les jus de fruits acides non seulement amollissent la surface de l'émail, affaiblissant ainsi la dent par érosion, mais encouragent aussi la carie dentaire^{4,22}.

Il a aussi été démontré que le jus préparé du fruit frais fait plus de dommage aux dents que l'utilisation du fruit entier lui-même²³. Les jus de pommes et d'oranges ont tous deux moins que 0,1 g/100 ml de fibre et le reste des composants de ces jus est également connu²⁴. Les principaux acides de ces jus sont les acides oxycarboliques (c'est-à-dire les acides maliques et citriques) qui ont les formules structurales suivantes :



La concentration moyenne de ces deux acides est indiquée au **tableau 1**.

TABLEAU 1

Concentrations d'acides citrique et malique dans les pommes et les oranges en meq pour 100 g de poids frais

(g pour 100 ml exprimés entre parenthèses) 1 meq d'acide citrique = 64 mg et 1 meq d'acide malique 67 mg ²⁵		
Fruit	Acide citrique	Acide malique
Orange	15 meq (0,735g/100ml)	3 meq (0,201g/100ml)
Pomme	trace	3-19 meq (0,20-1,273g/100ml) moyenne 7 meq (0,469g/100ml)

Les principaux sucres trouvés dans les deux jus sont indiqués au **tableau 2**.

TABLEAU 2

Sucres contenus en tant que pourcentage du poids de la portion de fruit consommé

Fruit	Glucose	Fructose	Sucrose
Pomme de table	1,72	6,08	3,62
Pomme à cuire	1,82	5,01	2,40
(Jus d') orange	2,36	2,38	4,70

Il y a plus de 22 autres acides organiques connus et plus de 14 acides aminés²⁸ connus dans les jus d'agrumes et de pommes et, outre le fait qu'ils sont une source additionnelle d'acidité dans les deux jus de fruits, ils contribuent à la dissolution du calcium de leurs anions acides (sauf l'acide oxalique) et à leur capacité d'agir comme « chélateurs »¹¹. Les acides aminés contribuent au contenu d'azote soluble et de protéines des jus^{24,28}. L'importance de l'association entre les jus de fruits naturels et les dents réside dans la popularité de ces jus qui sont consommés fréquemment et régulièrement étant donné un « marketing » persistant et efficace^{29,30,31} et la fréquence des rapports de pathologie dentaire associés à l'absorption de ces jus^{3a9}.

Un autre aspect à considérer est le fait qu'une substance doit être ionisée pour stimuler les papilles gustatives. Le goût sucré dérivé des sucres dans le fruit est intensifié par le milieu acide.

Cette intensification de saveur peut être considérée comme « addictive » (créant une dépendance)³² et encourage aussi la rétention plus longue du jus dans la bouche, permettant ainsi aux acides d'éroder les dents pour plus longtemps à la fois³³. Une combinaison acide-sucré (par exemple acide tartrique-sucrose, acide citrique-sucrose, acide malique-sucrose) est bien connue pour ses qualités particulièrement nocives pour les dents³⁴.

D'autres aspects tels que l'heure et la fréquence d'ingestion, l'endroit de contact de l'acide, la qualité et la quantité d'acides ainsi que les façons habituelles de manger et boire sont tous importants dans le développement de l'érosion dentaire³⁵. Dans des bouches vulnérables, l'érosion dentaire due aux acides peut avoir lieu au bout de 30 secondes lors de l'absorption de jus de fruits acides.

Discussion

Les nombreux rapports confirmant les effets délétères des boissons aux fruits acides au pH peu élevé et de la nourriture sur l'émail et la dentine soulignent qu'un diagnostic exact d'érosion dentaire doit être fait par le dentiste. L'érosion continuera à réduire le matériau dentaire tant que l'abus de jus fera partie du régime alimentaire. Les jus de fruits sont peu onéreux, bien promus, faciles à obtenir et distribués sur le marché dans une gamme étendue de saveurs tentantes. Bien que les jus de fruits ne forment qu'un pourcentage mineur de la consommation totale de boisson potable absorbée par la population, la consommation croissante de ces jus ne peut pas être considérée

comme absolument sûre et doit être considérée comme un facteur dans la détection clinique d'érosion et de carie. La signification de ceci a été indiquée avec insistance à la profession dentaire et aux diététiciens toutefois le public continue à demeurer ignorant des effets détritimentaires que ces boissons acides du commerce ont sur l'hygiène dentaire. Au contraire, une grande crédibilité et insistance sont placées sur les effets salutaires qui émanent de l'idée qu'il s'agit de jus de fruits « 100% pur et naturel » sans aucun regard pour l'effet délétère que ces jus ont sur les dents.

La consommation journalière de 0,5 l de jus de fruits ne serait pas considérée inhabituelle mais la consommation des fruits utilisés pour produire une quantité équivalente de jus serait considérée comme exagérément inhabituelle sinon indésirable. Le jus de fruits n'est pas « naturel », il est produit iatrogéniquement. Les facteurs naturellement restrictifs des fibres et de la peau des fruits entiers naturels procurent un sens de proportionnalité par leur volume. L'enlèvement de ces derniers par des machines dérange ce sens de proportionnalité et permet la consommation facile et, de ce fait, exagérée de jus de fruits.

La publicité constante et séduisante ne fait pas même allusion aux ravages produits par l'absorption de jus de fruits. Des syndromes tels que les « caries rampantes » chez les enfants à qui l'on donne un jus de fruits au coucher comme réconfort, les caries hébéphréniques incontrôlées chez les « grignoteurs » adolescents qui se nourrissent de jus de fruits ou l'érosion pernicieuse nécessitant des couronnes restauratives sont certaines des vilaines réalités auxquelles le public et la profession dentaire doivent faire face en conséquence de l'ingestion abusive de boissons aux fruits acides.

Rien que 150 ml de jus d'oranges procure la ration complète journalière en Vitamine C d'un adulte mâle de 70 kg aussi bien que 250 ml de jus de pommes fortifié (24 mg/100 ml). Une consommation journalière supérieure serait considérée comme abusive. D'autres solutions moins érosives, moins chères et plus savoureuses peuvent être obtenues facilement pour les valeurs nutritives des jus, y compris les vitamines.

Un étalement équilibré des nourritures aux heures des repas minimise les chances de développement de l'érosion et de la carie dentaire. Δ

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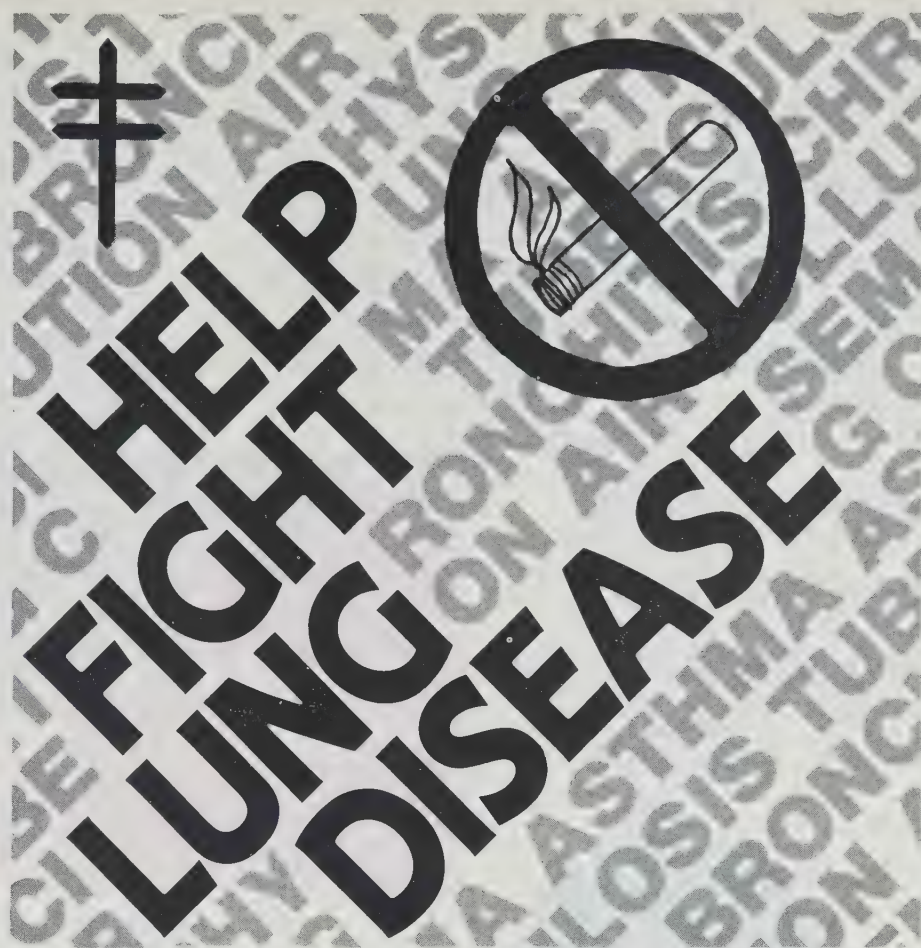
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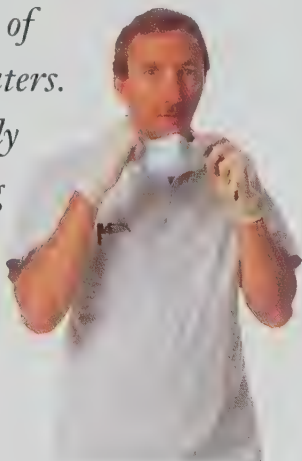
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Hepatitis B and HIV infections in dental professionals: Effectiveness of infection control procedures

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ABSTRACT

In a survey carried out in 1987 and 1988 in Vancouver British Columbia, 704 dental professionals filled out an anonymous questionnaire and submitted a blood sample. Of those not immunized, 11% had infection with Hepatitis B, with dentists having a rate of 18%, significantly higher than other dental workers. Two carriers of HBsAg were detected and no individuals showed evidence of HIV infection. There were no differences in infection rates by the specific infection control practices. Oriental dental-care workers had a significantly higher rate of infection than other races surveyed. In a multivariate model, race and the number of years in practice were the only significant factors in predicting infection. The use of gloves did not show a protective effect, although a threefold protection rate for gloves is the smallest difference that could be reliably detected. The immunization rate with Hepatitis B vaccine averaged 46%, with fewer dentists being immunized than hygienists. Seroconversion rates were lower in older individuals. Dental professionals had a high risk of Hepatitis B and had not been adequately immunized. Reliance on gloves for operator protection appears to be inadequate.

SOMMAIRE

Dans un sondage effectué en 1987-1988, à Vancouver (Colombie-Britannique), 704 professionnels dentaires ont rempli un questionnaire anonyme et remis une prise de sang. Parmi les sujets non immunisés, 11 % étaient infectés par le virus hépatique B, les dentistes accusant un pourcentage de 18 %, ce qui est un pourcentage beaucoup plus élevé que celui des autres professionnels dentaires. On a détecté deux porteurs du virus HBsAg mais aucun du virus HIV. On n'a relevé aucune différence dans les taux d'infection en tenant compte des méthodes utilisées pour éliminer les risques. Par contre, les professionnels dentaires orientaux accusaient un taux d'infection beau-

coup plus élevé que ceux des autres races. Dans un modèle multivarié, la race et le nombre d'années d'exercice constituaient les seuls facteurs importants pour prédire les taux d'infection. On n'a pas vu que le port des gants ait un effet protecteur même si, avec des gants, le taux de protection est triple, ce qui est la plus petite différence qu'on ait pu relever avec certitude. Le taux d'immunisation par vaccin contre l'hépatite B s'élevait à un pourcentage moyen de 46 %, le pourcentage des dentistes immunisés étant inférieur à celui des hygiénistes. Les taux de séroconversion étaient moins élevés chez les sujets plus âgés. Pour l'hépatite B, les professionnels dentaires accusaient un taux de risque élevé et n'avaient pas été convenablement immunisés. Enfin, il ne semblerait pas convenable pour les opérateurs de se fier uniquement aux gants pour se protéger.

Introduction

The increased risk of infection with HB virus in dental professionals has been well documented.¹⁻⁴ The recent and continuing epidemic of HIV infection has heightened the concerns of these professionals to the potential and real risks of infectious disease. This has resulted in reinforcement of the recommendations made for the protection of patients and staff by advisory and regulatory bodies, including the *Canadian Dental Association*, the *American Dental Association*, many state/provincial licensing bodies, *Centers for Disease Control*, and the *Federal Centre for AIDS*.^{5,6}

Evaluation of infection control procedures has been limited.³ Some studies have indicated that gloves were protective against HB infection,⁷ while others have not.^{8,9} Another study¹⁰ indicated that HIV transmission to dental professionals may be possible due to their professional activities. This study reports the results of a two-year survey which investigated the risk factors for infection, the efficacy of infection control procedures, and the response to immunization in dental professionals in British Columbia.

Method

The survey was carried out on individuals attending the annual meeting of the College of Dental Surgeons of British Columbia, in Vancouver in May 1987 and repeated in May 1988. An anonymous volunteer sample was recruited, via announcements and an information booth, to complete a questionnaire and to donate a blood sample. Anonymity was assured by the use of a unique code number known only to the volunteer. Both the serum samples and questionnaires used this code. The volunteers were able to obtain the results of the serologic testing by requesting the results for their code number, but the investigators were unable to identify or trace any individual.

Questionnaires were coded for both years of the study by one of the investigators and data were entered in the year in which they were obtained. Questionnaires were identical except that the one for 1988 requested information on participation in 1987.

The serologic tests performed were Hepatitis B surface antigen (HBsAg), antibody to core antigen (anti-HBc), antibody to surface antigen (anti-HBs) and antibody to human immunodeficiency virus (HIV). All assays were carried out with Abbott Laboratories' (Chicago, Illinois) test kits. All positive assays were confirmed with replicate determinations.

The Hepatitis B status for an individual was determined as follows:

- 1) **Susceptible** — All tests negative, not immunized.
- 2) **Carrier** — HBsAg positive.
- 3) **Infected** — HBsAg positive and/or anti-HBc positive or anti-HBs positive in an individual who had never been immunized.
- 4) **Seroconverted** — An individual who had been immunized and was anti-HBs positive.
- 5) **No seroconversion** — An individual who had been immunized and was anti-HBs negative.

The Hepatitis B status was determined in a hierarchical fashion; if an individual had anti-HBc present, he/she was considered infected, whether or not Hepatitis B

vaccine had been received.

Data Analysis

Statistical tests were carried out using a Chi-square test or Fisher's exact test if any cell was less than 5 expected. The level of significance was set at $p \leq .05$. Multivariate modelling was done using logistic regression analysis.

Results

Seven hundred and forty-eight individuals registered for the British Columbia Dental Convention in 1987, and two hundred and eighty-five individuals volunteered to complete the survey – a response rate of 38%. In 1988, there were approximately 1600 attending – 419 volunteers, for a response rate of approximately 26%. Eleven per cent volunteered for both years. The dual responses were not removed from the analysis as the infection control questions related to the last six months or last year. As not all individuals answered all questions, the rates were determined for respondents only.

There were 285 males and 410 females. The mean age of the males was 42 years, and females 32 years. As expected, the dental hygienists, assistants and others were younger and had fewer years in practice than the dentists: 9.6 years for dentists, 8.6 for hygienists, 7.7 years for assistants and 7.4 years for others.

Two individuals in this sample were positive for HIV antibodies by the ELISA technique. Neither showed positive results by the Western Blot technique. These results are interpreted as negative for infection with HIV.

Risk Factors for Infection

The following section consists only of those individuals who were susceptible to HBV and had never been immunized, or those who were infected with HBV. The two carriers of HBsAg were included in the infected group. Those who were immunized were excluded unless they were anti-HBc positive. There were 323 susceptible (never immunized) and 39 infected individuals, a rate of 11% (Table I). There were six inconclusive results that were not included in the analysis of this section. Non-respondents to a question were excluded and therefore the denominators vary for each group.

In looking at the personal risk factors for the transmission of HBV or potentially HIV, three individuals had used drugs intravenously. None were infected. Twenty had received blood or blood products, four (20%) of whom were infected. Six had intercourse with a

homosexual or bisexual male; one (17%) was infected. With respect to multiplicity of sexual partners, 17 reported no sexual partners, 253 reported 1 partner only, 26 reported 2 partners, and 17 reported 3 or more. The percentage infected in each group was 19%, 11%, 10%, and 6% respectively. None of these personal risk factors was statistically significant by chi-square from those not infected.

The racial background of this group was 317 Caucasian, 36 Oriental, and 10 others. Of those with an Oriental background, 31% had evidence of infection with HBV, while 9% of Caucasians and 10% of the others had evidence of infection. This was statistically significant: $p < 0.001$.

The rates of infection by professional group were different. Dentists had an infection rate of 19%, hygienists 2%, assistants 4%, and others 6%, (Table I). The p value was < 0.01 . The number of years in practice was not significant for the rates of infection: 10% for those in practice 0-4 years, 4% for 5-9 years and 13% for greater than 9 years (Table II).

We assessed whether taking a medical history changed the rate of infection. Although 77% took a history and regularly updated it, the infection rates were similar to those who did not. Having members of the following risk groups in one's practice did not increase the rates of infection significantly: known HB carrier, high risk ethnic group, hemophiliacs, male homosexuals, or other high risk groups for HB carrier states.

The participants were asked whether they had had a penetrating wound in the past six months and the estimated number of such wounds. The infection rate in those with no wounds was 12/110 (11%), in those with 1-5 wounds 18/166 (11%), and for those with more than 5 wounds 3/33 (9%).

The use of gloves was rated: for all patients, 74%; all high-risk patients, 14%; occasionally, 9%; or never, 3%. The infection rate in all patients or all high risk group use was 34/303 (11%) and in those who used gloves occasionally or not at all, 3/42 (7%) (Table III). This difference was not statistically significant, $p = 0.31$, one-tailed by Fisher's exact test. The odds ratio for the protective effect of gloves was 0.60, with test based limits, Miettinen method, of 0.18-2.06. The numbers in this study were sufficient however only to detect an odds ratio of 3 for protection by gloves with a power of 80%. This small sample suggests that gloves do not decrease the risk of infection by more than three times but may still be protective at a lower level.

Similarly to gloves, the use of a mask or eye protection was not associated with an altered rate of infection.

Multivariate analysis using the unconditional logistic regression method was carried out to determine the strongest determinants for infection. The terms entered into the model included race, age, sex, years in practice, type of practice and use of gloves. Race and years of practice were significant terms in the model.

TABLE I

Hepatitis B status in Dental Workers

	Susceptible	Infected	Carrier	Inconclusive	Rate
Dentists	124	30		2	19%
Hygienists	46	1		2	2%
Assistants	95	3	1	2	4%
Others	58	3	1	0	6%
Total	323	37	2	6	11%

TABLE II

Years of Dental Practice and Hepatitis B status

Years of Practice	Hepatitis B status			
	Susceptible	Infected	Carrier	Rate
0-4	74	7	1	10%
5-9	68	3		4%
10+	142	22		13%
Total	284	32	1	10%

Missing observations: 122

Immunization

Immunization status was determined from the questionnaire. For those who reported immunization, seroconversion was determined from the anti-HBs result. Those who were reactive were considered seroconverted, those who were negative or inconclusive were classified as not seroconverted. Ninety-six per cent of respondents stated that they were aware of the vaccine. In 1987, 113/278 (40.6%) were immunized, in 1988 this increased to only 208/413 (50%). Only 7.3% of individuals reported not being immunized because of having tested positive for HB markers. Knowledge of previous infection status was therefore not the reason for the low immunization rates. Of the dentists, 52%, of the hygienists 63%, of the assistants 33%, and of the others 18%, had been immunized. For those in practice 0-4 years, 50% were immunized, 5-9 years 57%, and ≥ 10 years, 50%.

The overall rate of seroconversion among those immunized was 68%, (Table IV). Dentists had a rate of 62%, hygienists 69%, assistants 84% and others 64%. In males the mean seroconversion rate was 62%, in females 73%. In males the seroconversion rate fell significantly with age (83% in 20-29 to 11% in the 60+). This was not found in females but there was only one individual in the 50-59 age group and no one in the 60+ range.

Discussion

This study recruited its population by a volunteer sample. Because of the nature of this recruitment, there is a strong subject selection bias operating which limits the conclusions made from the data. Because biases are non-random in nature,¹¹ they cannot be controlled in the analysis. Areas with a particularly strong likelihood of a bias operating were identified.

Our study population included individuals who were at risk of HB or HIV infection due to independent factors, including racial origin, sexual exposures to homosexual or bisexual males, multiple heterosexual partners, intravenous drug use and receipt of blood or blood products before 1986.¹²⁻¹⁵ Only Oriental racial origin was associated with increased risk. Since this exposure may occur before the occupational risk, it should be controlled in the study by adjusting the estimates of infection rates or alternatively in a multivariate model. Like others, we noted the infection rate increased with age^{3,4,16} and type of dental practice.¹⁷ In a cross-sectional study such as ours, we cannot tell whether the association with age

TABLE III

Use of Gloves and Hepatitis B status: Protection from Gloves

Glove Use	Hepatitis B status			Rate
	Susceptible	Infected	Carrier	
Always	226	27	1	11%
High Risk	43	6		12%
Occasionally	29	2		6%
Never	10	1		9%
Total	308	36	1	11%

Missing observations: 62

TABLE IV

Hepatitis B Immunization Status of Dental Workers

	Seroconverted	No seroconversion	Rate
Dentists	93	56	62%
Hygienists	59	27	69%
Assistants	42	8	84%
Others	7	4	64%
Total	201	95	68%

represents a low rate of infection in each year, or a high rate of infection in the past that is no longer present, a cohort effect.

We used a multivariate technique, unconditional logistic regression, to determine whether race, years in practice, type of practice or sex was responsible for this increased risk. In this study, the most important determinant of risk was the number of years in practice. This presumably represents a marker for the number of potential exposures one may have had.

Although there are many reasons for taking a medical history from patients, we could not identify a difference in the risk of HB infection with taking a history or knowing that there were high risk patients in one's practice. This is likely due to the inaccuracies of a history in predicting risk.¹⁸

The use of protection such as gloves, mask or eye protection did not decrease the risk of infection with HB virus, although a three-fold protection by gloves would have been required to be reliably detected by our study. Rheingold⁹ also failed to show protection from gloves. Our finding may have been due to a recent change in the use of protective measures, after infection had occurred, but Rheingold controlled for this factor. Other studies have found a protective effect of gloves,^{3,7} and they are recommended by advisory bodies.^{5,6}

Gloves were reported to be used in all cases by 74% of all practitioners. This

change in behaviour has occurred due to continued recommendations over the past several years. However, compliance to this recommendation is not universal. The findings of a recent study of a random sample of American dentists are relevant in discussing the findings of our study.¹⁹ That study found increased compliance with the use of barrier techniques; the use of gloves by general dentists increased from 23% in 1986 to 76% in 1988. It should be noted that more than 75% of dentists had been using gloves in the manner reported for two years or less. This change in pattern may not be demonstrable in their serologic status, due to the short time in which this change has occurred. Hygienists wore gloves 61% of the time in 1986, which was increased to 97% by 1988. Eyewear was worn in 72% of treatments in the 1986 survey and increased to 82% in the more recent survey. Masks were used for all patients by 26% in 1986 and increased to 47% in 1988.

In the same American survey,¹⁹ only 63% of hygienists, 52% of dentists, and 33% of auxiliaries were immunized in spite of repeated recommendations to do so. Similarly, we found that only 46% of participants in our study were immunized. An additional finding in this study was that seroconversion was 68%. This rate of seroconversion indicates the need for post immunization serologic study. The seroconversion rate for males decreased with increasing age.

Future studies should review the use of barriers (gloves) and the time for which they have been used. The number of years that these infection control measures have been in use may influence the findings in studies, as many of these measures have only been taken in recent years. The study by Epstein et al.³ evaluated patients prior to availability of HBV vaccine and was able to identify decreased infection rates associated with glove-use. This was prior to the general recommendations and the increased pressure for infection control, and the more common use of these guidelines following the HIV epidemic. Those who reported compliance with infection control guidelines may have done so for a longer period on a regular basis. Gonzalez and Naleway,⁷ using data from the ADA annual meeting, showed that glove-use was associated with a decrease in HB infection and that this decrease was not explained by years of practice. The odds ratio of HB infection in those using gloves routinely compared to intermittently or never was 1.7 with test based limits of 0.95-3.42 (Miettinen). This is within the range found in our study. However, with an overall odds ratio of 1.7, the use of gloves for protection does not appear to be significantly effective. Both of our findings included no protection, (odds ratio = 1), within the confidence limits.

Other evidence for the use of gloves in infection control is present in studies of HBV carrier dentists who, upon identification of their status, did not transmit infection to subsequent patients when gloves and other barriers were used.^{20,21} Another study demonstrated that the use of gloves, strict handwashing and limitation of use of intravascular devices was associated with a significant decrease in a hospital-wide outbreak of *Staphylococcus aureus* septicemia.²² These studies, however, indicate the effectiveness of gloves in protecting the patient and preventing person-to-person transmission rather than protecting the operator from puncture wounds. We would have detected a three-fold or greater protective effect in our study, indicating less protection than this for the dental professional. Gloves may be relatively more efficient at protecting the patient than the wearer. Moreover, the lack of HIV transmission in this study and the very low rate reported by Klein¹⁰ indicate a low risk of HIV transmission in dental practice, even if gloves may not efficiently protect from HBV infection. We did not find any evidence of a protective effect from masks or eye protection. This is consistent with the known routes of transmission of HB being sex-

ual, percutaneous, and maternal-fetal. There is no evidence of droplet or air-borne spread.¹²⁻¹⁵

Only 46% of the participants in this study reported being immunized in spite of recommendations and the volunteer nature of the survey. Of these, only 68% had seroconverted with anti-HBs in spite of three or more doses of vaccine. The nature of the study, which likely encouraged individuals who were concerned about their immune status to volunteer, may have given a lower rate of seroconversion than expected.^{23,24} This rate is, however, not dissimilar to that reported by the Toronto General Hospital.²⁵ With increasing age being a risk factor for lack of seroconversion, immunization as soon as possible after the increased risk of infection occurs, appears to be necessary.²⁶ In the case of dental professionals, this would be on admission to the training facility and prior to patient contact. This becomes even more important since gloves did not protect from infection in our study population, and an infection rate of 11% is unacceptably high risk.

Conclusions

Hepatitis B infections continue to occur in dental professionals. Our survey indicates that the recent recommendations for the use of gloves and other infection control measures have either not had time to show a protective effect or do not completely protect the dental worker. While we do not conclude that gloves provide inadequate protection against acquiring Hepatitis B, we are concerned about the reliance on barrier methods as the sole method of protection. We strongly recommend the HB vaccine for dental professionals and stress that it be administered at as early an age as possible. Δ

Acknowledgements

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The Oral Manifestations of HIV Infection

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INTRODUCTION

As the number of individuals infected with the Human Immunodeficiency Virus (HIV) grows, so too will the population of patients with this infection increase in general dental practice. Familiarity with the oral manifestations of both HIV infection and AIDS is now required in dentistry so that patients can be identified and managed appropriately. In this article, the manifestations of HIV infection and AIDS are briefly reviewed and examples are given. Emphasis is placed on the oral signs and symptoms that may be encountered by dentists in previously undiagnosed HIV patients.

Since the initial reports of Acquired Immunodeficiency Syndrome (AIDS) in the early 1980's, knowledge of the disease has increased immensely. The infection is caused by the Human Immunodeficiency Virus (HIV) that specifically infects T-lymphocytes of the immune system, making the patient susceptible to many types of infection and to malignancies. HIV infection occurs in male homosexuals and bisexuals, in intravenous drug abusers, in patients who received transfusions of blood products between the years of 1980-1986 (a group that includes many hemophiliacs), in the sexual partners of HIV-infected persons and in children of HIV-infected mothers.

TABLE I

CDC Classification of HIV Infection

- | |
|---|
| Group 1: Acute infection |
| Group 2: Asymptomatic infection |
| Group 3: Persistent generalized lymphadenopathy |
| Group 4: Other diseases |
| A: constitutional diseases |
| B: neurological diseases |
| C: secondary infectious diseases |
| D: secondary cancers |
| E: other conditions |



Fig. 1 PSEUDOMEMBRANEOUS CANDIDIASIS. A flat, erythematous area with a thin, milky surface layer on the soft palate of a 21-year-old male. The patient was experiencing some discomfort in swallowing. Investigation led to the diagnosis of HIV positivity. Often the classical, thick, white-yellow plaques are not seen in the HIV-infected individual. Instead, as shown here, only a subtle white film over an erythematous base is present.

HIV infection is classified clinically into four main stages, ranging from the asymptomatic carrier state to the various opportunistic infections and malignancies that define fully developed AIDS (Table I). Group I is comprised of patients who have initially been exposed to the Human Immunodeficiency Virus, who have developed mononucleosis-like symptoms and who have subsequently seroconverted for HIV antibodies. Recovery from Group I takes the patient into Group II, the asymptomatic carriers of HIV, who may remain asymptomatic from months to years. Group III HIV infections are characterized by lymphadenopathy (> 1 cm) of two or more extra-inguinal lymph nodes for more than three months (persistent generalized lymphadenopathy). Five subgroups of opportunistic infections and malignancies comprise Group IV, the final stage of HIV infection, some of which on their own define fully developed AIDS. Included in this group are malignancies such as Kaposi's sarcoma and malignant lymphomas and opportunistic infections such as disseminated herpes simplex.¹ These manifestations of HIV infection may present themselves in the mouth, in some instances as the first clinical evidence of HIV infection. As the infected patient population continues to increase, dentists will encounter these



Fig. 2 HYPERPLASTIC CANDIDIASIS. White, adherent plaques on lateral borders and dorsum of the tongue of a 65-year-old man. The lesions were not painful. HIV positivity was again diagnosed as a result of investigation of these lesions.

early manifestations more frequently.

The oral changes seen in HIV infection have been classified based on etiology² (Table II). A diverse array of HIV-associated lesions has been recognized, many of which have been rarely reported. The more common oral effects of HIV infection will be discussed in this article.

Fungal Infections

Oral candidiasis is the most common fungal infection seen in HIV-infected individuals. Schiodt and Pindborg³ observed that 35% of seropositive patients and 75% of those with fully developed AIDS had evidence of oral candidal infection. Pseudomembranous, hyperplastic and erythematous forms and angular cheilitis are the four types of oral candidiasis, and all may occur in HIV infection.

Pseudomembranous candidiasis is the most common form and ranges in appearance from a fairly unobtrusive milkiness of the affected mucosa (Fig. 1), to thick, elevated white plaques resembling curds of milk. These plaques when removed leave a red, raw mucosal base. Erythematous candidiasis is present in up to 30% of seropositive patients, usually as an erythema on the palate or dorsum of the tongue without white plaque formation. When the tongue is affected, loss of papillae may also occur.³

Hyperplastic candidiasis is seen as a white, elevated, non-removable keratotic lesion, usually on the buccal mucosa or tongue (Fig. 2). It can range in clinical appearance from a vaguely reticulated pattern resembling lichen planus to a homogeneous white patch. This and the fourth type of oral candidal infection, angular cheilitis, presenting as uni- or bi-lateral inflamed or ulcerated fissures at the corners of the mouth, are somewhat less common.³

The symptoms of candidiasis are often very slight, usually consisting of mild persistent discomfort. The erythematous form, affecting the palate, results in discomfort in swallowing. Angular cheilitis causes discomfort when moving the lips and is unsightly. All forms of HIV-associated oral candidiasis are persistent and difficult to eradicate. They recur quickly in many cases on cessation of antifungal therapy.

Oral candidiasis has been shown to have a predictive value for the development of AIDS. Klein et al.⁴ found that 46% of patients with lymphadenopathy, constitutional symptoms and/or oral candidiasis had developed AIDS within a year. Any form of oral candidiasis that is found in an otherwise apparently healthy patient should raise the suspicion of an underlying HIV infection.

TABLE II

Oral Lesions in HIV Infection

(modified from Pindborg²)

FUNGAL

Oral candidiasis
Oral histoplasmosis
Oral cryptococcosis

BACTERIAL

HIV-necrotizing gingivitis
HIV-gingivitis
HIV-periodontitis
Other bacterial infections

VIRAL

Herpes simplex
Herpes varicella-zoster
Hairy leukoplakia
Warts and condylomata
Cytomegalovirus infection

NEOPLASMS

Kaposi's sarcoma
Non-Hodgkin's lymphoma
Squamous cell carcinoma

UNKNOWN

Recurrent aphthous ulcers
Salivary gland enlargement
Xerostomia
Delayed wound healing
Toxic epidermolysis



Fig. 3 HERPES ZOSTER. A vesiculo-bullous eruption along the course of the third division of the mandibular nerve is a 22-year-old male. The skin lesions have crusted over. Lesions were also present on the tongue, as shown, and on the buccal mucosa and gingiva on same side. Occurrence of zoster in this case suggested an underlying immunosuppression. Serological investigation confirmed HIV infection.



Fig. 4 HAIRY LEUKOPLAKIA. Corrugated white lesions along the posterolateral border of the tongue in a 21-year-old male. In its early form, as shown here, hairy leukoplakia is often very subtle and may go unnoticed unless careful clinical examination is made. This patient was known to be HIV-positive but had no previous HIV-associated infections.

Bacterial Infections

Rapidly progressive periodontal disease may be one of the first manifestations of HIV infection, with up to 19% of AIDS patients so affected. The periodontal changes include marked edema and erythema of the marginal and attached gingivae with spontaneous bleeding and pain. Although the gingival changes are mild, severe alveolar bone loss is often radiographically evident. In some patients, acute necrotizing ulcerative gingivitis (ANUG) develops, often in severe form with interproximal crater formation and severe interproximal bone destruction.⁵ A medical history with risk factors for HIV infection in a patient with unusually rapid periodontal bone loss or with ANUG, suggests the possibility of HIV-associated periodontitis and the appropriate investigations should be made.

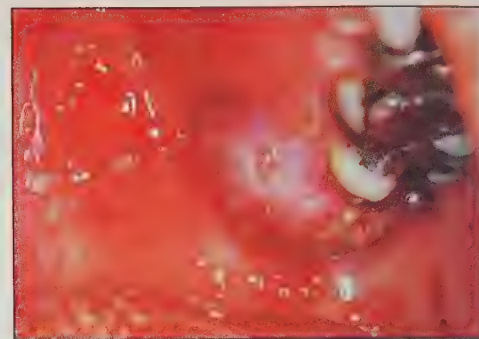


Fig. 5 KAPOSI'S SARCOMA. A large, red nodular mass located distal to the maxillary second molar in a 36-year-old male. Clinical appearance of this lesion is not unique and specific diagnosis must be made at biopsy. This patient is known to be HIV-positive.

Viral Infections

Herpes virus group infections are common in the immunocompromised patient. Herpes simplex lesions can present themselves as primary or recurrent herpetic gingivostomatitis or as recurrent herpes of the lips or circumoral skin.⁶ These lesions begin as multiple small vesicles on the lips, mucosa or skin that soon rupture, leaving an ulcerated area with a polycyclic outline. In non-immunocompromised individuals, the clinical course of herpes simplex infections is usually short, with healing of the lesion occurring within seven to 10 days. A protracted clinical course with short intervals between recurrent herpetic infections often characterizes the condition in the immunocompromised individual.

Herpes zoster, is caused by the varicella-zoster virus, the etiologic agent in chickenpox and shingles. Zoster is seen in dental practice as a painful, severe, vesiculo-bullous eruption along the distribution of the second or third division of the trigeminal nerve, usually involving skin and oral mucosa simultaneously (Fig. 3). Individual lesions are clinically similar to herpes simplex, and are differentiated only by their anatomical distribution. Zoster commonly affects the middle-aged and the elderly. Its occurrence in younger people or in members of high-risk groups should give rise to suspicion underlying of HIV infection.

Hairy leukoplakia is a non-removable, corrugated white lesion occurring on the posterolateral borders of the tongue, either in striae or in plaque (Fig. 4). Hairy leukoplakia varies in presentation from tiny, white elevated areas to extensive white patches. Often the lesions are asymptomatic and discovered only on careful examination.⁷

The etiologic agent was initially thought to be a human papillomavirus, but subse-

quent studies have shown that the Epstein-Barr virus, a member of the herpes group, is the probable cause of this lesion.⁸ Hairy leukoplakia is now described in all risk groups for HIV infection, and is shown to be a significant prognostic indicator for the development of fully developed AIDS. Greenspan et al.⁹ reported that 83% of a group of patients with hairy leukoplakia developed AIDS within 31 months.

Neoplastic Lesions

The most common neoplastic lesion seen in the HIV-positive population is Kaposi's sarcoma. Up to 30% of patients with AIDS will develop this tumour, with the most common oral site being the hard palate.¹⁰ Initially, the lesion appears as a red or blue patch that may be mistaken for a bruise or hemangioma. The lesion enlarges and ultimately forms a large blue to purple mass that may ulcerate and bleed (Fig. 5). Kaposi's sarcoma is also seen on the gingivae, resembling a pyogenic granuloma. The early appearance of Kaposi's sarcoma is not clinically unique and must be differentiated from other vascular hamartomas and tumours by biopsy.¹¹

Non-Hodgkin's lymphomas are another group of malignancies that show a higher incidence in the AIDS population. These lymphomas tend to pursue an aggressive clinical course, with the palate being a common site of initial presentation.¹² The clinical presentation is usually a rapidly growing mass of soft, rather friable tissue which tends to bleed easily. Displacement of teeth is not typically a feature but underlying bone destruction is usually visible on radiographs. Squamous cell carcinoma is another malignancy which has also been reported with greater frequency in HIV-infected patients.¹³ These tumours may present themselves as keratotic, erythematous, ulcerated or exophytic lesions.

Summary

The spectrum of oral lesions found in the HIV-infected population forms a diverse group of opportunistic conditions, all of which may be seen in non-HIV infected patients. With the continuing increase in HIV-positive individuals, it is important that practising dentists become familiar with the clinical features of HIV-associated oral diseases to facilitate early diagnosis and appropriate therapy. Δ

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Reprint requests to: Dr. Main.

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Edmonton & District Dental Society
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February 15-16, 1991
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February 22, 1991
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What You Should Know Today
Dalhousie University
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March 13-16, 1991
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B.C. College of Dental Surgeons
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May 2-4, 1991
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May 16, 1991
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Toothache: Diagnostic and
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May 26-30
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Ordre des dentistes du Québec
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August 24-28, 1991
Canadian Dental Association Annual
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October 3-5
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Dentistry 2000
Canadian Academy of Restorative Dentistry
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February/Février 1991

February 7-8: Academy of Dental Materials Contact: Dr. S.C. Bayne, Dept of Operative Dentistry, University of North Carolina, 7540 Brauer Hall, Chapel Hill, NC 27599-7450, USA.

February 15-16: American Prosthodontic Society Contact: Dr. H.J. Harvey, 919 N Michigan Ave, Suite 460, Chicago, IL 60611, USA.

February 16-23: Virgin Islands Dental Association Convention in St. Thomas. For convention pre-registration and group travel and accommodation, please contact: Dr. Bob Brandon, 85 Lonsdale Dr., London, Ont. N6G 1T4 or tel.: (519) 657-3368.

February 17-20: 126th Midwinter Meeting of the Chicago Dental Society. Contact: Chicago Dental Society, 401 Michigan Ave, Chicago, IL 60611, USA. Tel.: (312) 836-7300.

March/Mars 1991

March 1-8: American Board of Orthodontics. Contact: Dr. G.D. Selfridge, 225 S Meramec, Suite 310, St. Louis, MO 63105, USA.

March 17-21: 26th Australian Dental Congress in Adelaide, Australia. For more information, contact: National Congress Office, P.O. Box 29, Parkville, Victoria 3052, Australia.

March 27-28: Big Apple New York Dental Meeting. Contact: Dr. L. Zucker, 3201 Grand Concourse, Bronx, NY 10468, USA.

April/Avril 1991

April 6-13: 27th International Alpine Dental Conference in Courchevel 1850 France. For more information, contact: International Dental Foundation, 53 Sloane St., London SW1X 9SW, England. Tel.: 071-235-0788.

April 17-21: American Association of Endodontists. Contact: Ms. I.S. Kudo, 211 E Chicago Ave, Suite 1501, Chicago, IL 60611, USA.

April 17-21: American Association for Dental Research in Acapulco. Contact: Judith Gauchel, 1111-14th St NW, Suite 1000, Washington, DC 20005, USA. (202) 898-1050.

May/Mai 1991

May 2-5: American Academy of Cosmetic Dentistry in New Orleans. Contact: Ms. Barbara Jo Zoeller, 2709 Marshall Crt, Madison, WI 53705, USA.

May 9-12: American Dental Society of Anesthesiology. Contact: Mr. Peter Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

May 12-15: American Association of Orthodontists. Contact: Ms. Audrey Schaper, 460 N Lindbergh Blvd, St. Louis, MO 63141, USA.

May 19-24: Academy of Denture Prosthetics. Contact: Dr. Charles Swoope, 1515 - 116th Ave NE, Suite 303, Bellevue, WA 98004, USA.

May 25-28: American Academy of Pediatric Dentistry in San Antonio, TX. Contact: Dr. J.A. Bogert, 211 E Chicago Ave, Suite 1036, Chicago, IL 60611, USA.

May 30-June 1: Dutch Dental Exhibition. Contact: Events Services Centre BV, Postbox 2139, 2800 BG Gouda, The Netherlands. 31-1-820-38166.

June/Juin 1991

June 5-8: Medical/Hospitech 91 in Bangkok, Thailand. For more information, contact: SHK International Services Ltd., 23/F, 151 Gloucester Rd., Wanchai, Hong Kong.

June 5-10: 3rd International Symposium cum Training Course on Osseointegrated Dental Implants in Singapore organized by the University of Pennsylvania. Contact: Orchard Dental Centre Pte Ltd., 268 Orchard Rd #05-07, Singapore 0923. Tel: (65) 7343162.

June 5-12: American Dental Hygienists Association. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Chicago, IL 60611, USA.

June 10-14: 2nd Iberian-Latin American Congress on Preventive Odontology & 2nd National Congress on Pediatric Odontology in Havana, Cuba. For more information, contact: Federacion Odontologica Latinoamericana, Calle 4, No. 407 entre y 19, Vedado, La Habana, Cuba.

June 14-17: The Third World Congress on Preventive Dentistry in Fukuoka, Japan. For information, contact: Secretariat of WCPD '81, c/o Dept. of Preventive Dentistry, Faculty of Dentistry, Kyushu University 61, Higashi-ku, Fukuoka, 812 JAPAN.

July/Juillet 1991

July 12-17: Academy of General Dentistry. Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

July 14-16: 12th International Conference on Oral Biology in Athens, Greece. Contact: International Association for Dental Research, 1111-14th St NW, Suite 1000, Washington, DC 20005, USA. Fax (202) 789-1033.

August/Août 1991

August 8-11: American Academy of Esthetic Dentistry in Santa Barbara, CA. Contact: Ms. Cheryl Kraus, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA. (312) 664-2122.

September/Septembre 1991

September 12-15: International Association for Orthodontics. Contact: Joanna Carey, 211 E Chicago Ave, Suite 915, Chicago, IL 60611, USA. (312) 642-2602.

September 25-29: American Association of Oral & Maxillofacial Surgeons in Chicago. Contact: Lisa Sykes, 9700 W Bryn Mawr Ave, Rosemont, IL 60018, USA. (708) 678-6200.

September 27-30, 1991: 13th Congress of the International Association of Dentistry for Children, Kyoto, Japan. For information contact the Secretariat, 13th Congress of the International Association of Dentistry for Children, c/o Japan Convention Services, Inc., Sumitomo Seimei Midotsuji Bldg., 4-14-3, Nishitemma, Kita-ku, Osaka 530, Japan.

September 29-30: American Board of Oral and Maxillofacial Radiology 1991 Certifying Exam in Seattle. Application deadline: March 1, 1991. Contact: Dr. A. Ruprecht, University of Iowa, College of Dentistry, DSB-356, Iowa City, IA 52242-0101. Tel (319) 335-7341.

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In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences: application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

Product Monograph available on request.

Reference:

1. Whitley RJ, Levin M, Barton N, et al: Infections caused by herpes simplex virus in the immunocompromised host: Natural history and topical acyclovir therapy. *J Infect Dis* 1984;150:323-329.

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1. Hechter, F.J., Symmetry and dental arch form of orthodontically treated patients. *JCDA* 44:173-184, 1978.
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2. Kilpatrick, H.C. *Work simplification in dentistry*, ed. 2, Philadelphia, Saunders, 1964.

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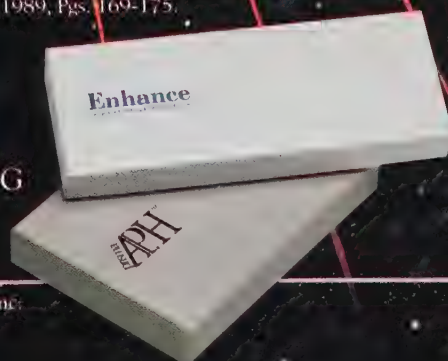
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1. Jefferies, Steven R., M.S., D.D.S., Smith, Roy L., Ph.D., Barkmeier, Wayne W., D.D.S., M.S., Gwinnett, A. John, Ph.D., B.D.S., L.D.S., R.C.S., "Comparison of Surface Smoothness of Restorative Resin Materials," *J. Esthetic Dent.*, Vol. 1, No. 5, Sept./Oct. 1989, Pgs. 169-175.

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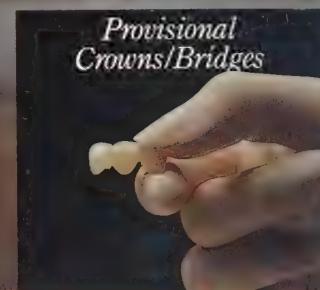
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This month's cover illustrates Dr. Taras Snihurowycz's iconographic rendition of St. Apollonia, the patroness of dental sufferers. See page 85 for an article about Dr. Snihurowycz and information on how to obtain a photo of St. Apollonia.

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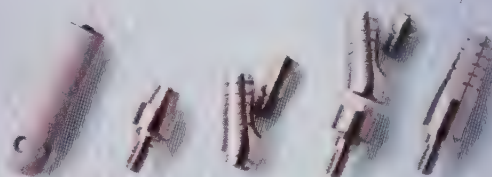
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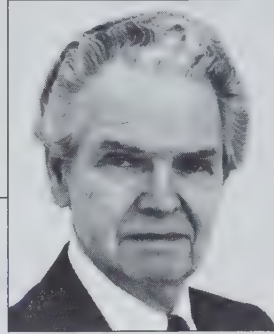
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Responsibility

This editorial was penned on December 18 — two days after CBS “60-Minutes” aired a story on mercury in amalgam fillings on national television. Our crystal ball cannot project what has transpired between this December date and mid-February when these words present themselves in print. However, at this moment, the biased “60-Minutes” feature has the potential of perpetrating a cruel hoax on the innocent public and has cast doubt on our very responsible association/profession.

The responsibility (or irresponsibility) of the media is a serious issue. The media will often howl that their prime responsibility is to keep the public informed. This in itself is a veiled explanation. The media, particularly television, has as a priority to sell time. The keyword is “ratings” and seldom does anything supersede it. Ratings bring advertisers and advertisers bring *money*; that’s the bottom line.

The print and electronic industries which largely comprise the media will often sensationalize news reports to garner public attention and to outdo the competition in the ratings battle. Hence, the manner in which Canadian television stations and newspaper chains descended upon CDA (and most provincial associations) following the airing of the “60-Minutes” amalgam discussion was alarming albeit, predictable.

Think back to events such as Oka, Meech Lake, or any catastrophe in your home town. Recall the dozens of microphones thrust into people’s faces and the television crews stumbling over one another in a mad scramble to be the first. Think of the invasion of privacy and the lack of human decency when a family tragedy within your own neighbourhood turns into a media circus.

There is no question that Morley Safer’s report on mercury in amalgam was biased and sensationalistic. In the feature, one spokesman from the *American Dental Association* was pitted against ten carefully selected anti-mercury supporters. The ADA’s Dr. Heber Simmon’s quiet, gentle professionalism as he questions the validity of research conducted on one sheep was hardly a match for the anecdotal misrepresentation and emotionally charged criticisms of others Safer interviewed. In the eyes and ears of the public, how could any statement from a dentist appear valid alongside that of a woman relating how she threw her cane at her physician and went dancing — the day after her crippled body was miraculously transfigured following the removal of five amalgam fillings?

(Continued next page)

The proactive role of the *Canadian Dental Association* was clearly demonstrated throughout the entire matter. Weeks before "60-Minutes" was aired (we knew it was coming) preparations were underway to inform dentists, patients and the public. Information packages were delivered to dentists two weeks in advance so they and their patients might know the issues. CDA refused to panic like sheep. How's that for irony?!

Following the Morley Safer exposé, no member of the media was refused an interview despite some unreasonable demands. The CDA efficiently arranged interviews with knowledgeable and creditable spokespersons. Still, the public cries of anguish and pleadings of hope were sad — testimony to the damaging effect sensationalistic reporting can have.

At the moment of formulating these words, our department is talking with a woman from Beamsville, Ontario, who has had arthritis for eleven years; to a man afflicted with Multiple Sclerosis for six years and to a mother whose child has chronic headaches and dizziness. A cry of hope! "If the silver fillings are removed will there be a cure?"

An angry, upset and ill woman confronted this Editor with an outburst that the CDA, and dentists everywhere, have been shirking responsibility and Mr. Safer and Drs. Vimy and Lorscheider have revealed us for what we are. A sympathetic and calm explanation concerning valid scientific research fell on deaf ears. So too did mention of the CDA's ongoing endeavours to improve health care. As Dr. Allister McLeod told us in a reassuring phone call, "Isn't all of this reminiscent of the fluoridation battle years ago!"

Our profession has an awesome responsibility: protection of the public. We accept that, as we did with radiation, anaesthesia, fluoridation and other challenges in our path. An irate (and scared) caller to the CDA was told "Our job is to help you. Dental faculties and researchers around the world are working for you. The instant we know of a benefit **or a danger** to your well-being, you will be the first to know."

That's **our** responsibility. The dental profession pleads for equal responsibility from those involved in the dissemination of news.

P.R. Crawford, BA, DMD

Editor: Journal of the Canadian Dental Association

President's Column



Thoughts on keeping things together: Licensure and Accreditation in Canada

As a French-speaking dentist from Quebec who has the honour to be president of the Canadian Dental Association, I know that these days, national associations have their work cut out for them. Getting ten provinces to agree on things is not easy. Canada itself, as a nation, seems to have to work extra hard just to maintain its unity in the face of regional disparity. CDA and the dental profession face the same challenging task of trying to keep things together.

A system that seems about to fall apart is the one whereby graduates of CDA-accredited programs in dentistry are able to obtain certificates from the National Dental Examining Board of Canada, and subsequent licensure without further examination. Up to the present, licensing authorities in each province (except Quebec) have granted licensure (within certain time constraints) to candidates certified in this manner. Now Ontario is planning to introduce its own licensing examination and there are rumblings that other provinces are considering similar action. For its part, the National Dental Examining Board of Canada is launching a pilot program featuring the inclusion of external examiners in the final evaluation process at several faculties of dentistry in Canada. The goal is to establish such a program nationwide as an additional requirement for NDEB certification of graduates of Canadian programs.

Under the present system, Canadian faculties of dentistry enjoy a considerable degree of autonomy. If they meet the requirements of accreditation, their graduates may be nationally certified. In Quebec, of course, the only way to get a license if one is from out of the province is to obtain the NDEB certificate by examination and to pass the French language proficiency test. Canadians are accustomed to making special allowances for Quebec, but what on earth is happening in the rest of the country? Are graduates of Canadian schools somehow proving unworthy? Is there evidence that the old system is churning out unqualified dentists giving licensing authorities cause for alarm? The answer to these questions is clearly "No!"

The largest single factor precipitating these changes is the anticipated return to Canada (each year for the next few years) of numerous Canadians who have graduated from dental schools in the United States. About one hundred or so U.S.-trained candidates return to Canada each year, and both the NDEB and provincial licensing authorities must deal with them. Under the present system, these U.S. graduates must write NDEB examinations, while graduates of accredited Canadian schools do not. Both the NDEB and provincial licensing authorities need to show that all candidates are treated equitably. Ontario, which will face the largest number of returning U.S.-trained Canadians, believes that the easiest way to show impartiality is to subject all candidates to the same examination. The NDEB seems to feel that it must be directly involved in examination processes related to both groups, even though the processes themselves may differ.

(Continued next page)

President's Column

It is ironic that this situation has developed because our profession has been successful in influencing reduced enrolment quotas at Canadian faculties of dentistry. U.S. schools were having trouble filling their enrolment quotas and were happy to accommodate the resulting extra demand from Canadian students. However, since many of these graduates will return to Canada, the developing problem of excess dental manpower remains. Moreover, as the NDEB and the licensing authorities prepare to process these U.S.-trained graduates, they are making changes to the system of certification and licensure as it applies to Canadian-trained graduates.

It seems to me that we should NOT process dental students schooled in Canada in the SAME fashion as those trained outside Canada; instead, we need to demonstrate that both groups are fairly evaluated against the same standard even if the processes employed are different. Giving everyone an identical examination solves one problem but creates another: it takes us back twenty years in educational philosophy to a system where the educational program is principally oriented to an external examination instead of to the needs of the students. Our current system is miles ahead of such an approach.

Rather than going backwards, we should work at fine-tuning our current system. We should continue improving and developing the accreditation process and ensure that the certification examination process for foreign graduates reflects the same standard employed for Canadian graduates. We can make certain that examiners are well prepared and competent, and that each national certification examination, and its results, bear the closest scrutiny.

My fear is that we will not know what a good thing we have had until it is lost. The granting of a national certificate and subsequent licensure on the basis of a candidate's graduation from a CDA-accredited program has been a good thing. I believe it's time for a national conference on accreditation, certification and licensure in dentistry before it's too late.

Gilles Dubé, DMD, MSc, Adm. Santé
President of the Canadian Dental Association

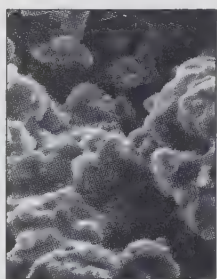
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The amount of information generated today about infection control is overwhelming. To clarify the confusion, ignore the claims and focus on the facts.

FACT: The CDA and CDC have both stated that all heat stable dental instruments should be routinely sterilized between use by autoclave, dry heat or chemical vapor.

FACT: There are many surfaces and instruments in a dental operator which cannot undergo sterilization. A high-to-intermediate level disinfectant is therefore required. For complete disinfection, you want a tuberculocidal, broad spectrum kill, an EPA and ADA acceptable product, non-corrosive to instruments and as non-toxic as possible.

FACT: Pathex, a potent disinfectant from the Block Drug Company, is a broad spectrum, dual synthetic phenol which is bactericidal, virucidal, fungicidal, pseudomonacidal, and tuberculocidal in just 10 minutes.

FACT: Pathex is intended for use as a surface disinfectant (a unique non-aerosol sprayer bottle is available for this purpose); a holding solution (a special detergent formula starts cleaning action chairside); and for immersion disinfection of semi-critical instruments.

FACT: The combination phenol formulas based on o-phenylphenol (9%) and o-benzyl-p-chlorophenol (1%), when compared with glutaraldehydes, are less corrosive to metal instruments, will not yellow skin or release irritant fumes or odor, and are less toxic.¹

FACT: Pathex is biodegradable.

When all the "noise" is eliminated, so is the confusion. The choice is clear — Pathex for your disinfection needs.



¹ American Dental Association Council on Dental Therapeutics. Acceptance of (synthetic phenol) disinfectant for instruments and equipment. JADA 110 394, 1985



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Toronto, Ontario M4B 3E3
1-800-268-5747

Quality Products for Dental Health

Pathex

An effective disinfectant solution for dental instruments and devices.

Grateful Dentist Donates Art Work to CDA

This month's cover depicting St. Apollonia, the patroness of dental sufferers, is a photo of the iconographic art presented to the CDA Board of Governors during their annual meeting held in Ottawa last August. It is from the talented hands of Dr. Taras George Snihurowycz, Associate Professor in the Department of Rehabilitative Dental Science at the Faculty of Dentistry, University of Manitoba.

The materials of the impressive work, measuring approximately 1' x 2', were thoughtfully chosen. "Soapstone symbolizes stability," said Dr. Snihurowycz, "the stability that Canada gave me when I first arrived." "And in dentistry," he continued, "gold symbolizes eternity. I am grateful for all the opportunities Canada extended to me and my family over the years — opportunities best represented by Canadian dentistry."



Dr. Kevin Roach, Past-President of CDA (left), accepts gift of art work from Dr. Snihurowycz.

Born in June 1918, in the Western Ukraine, Dr. Snihurowycz left his troubled homeland for Canada in 1950. He holds

dental degrees from the University of Munich, West Germany, and the University of Manitoba (1962). After a short period in private practice he joined the full-time ranks of the Faculty of Dentistry in Manitoba.

In 1975, without any artistic training, Dr. Snihurowycz decided to try his hand at religious art. Indulging a lifelong interest in Ukrainian and Byzantine iconography, he painstakingly copied directly from books and other artifacts, utilizing a variety of media, paint and gold leaf. Since his interest began he has finished more than two hundred icons of different sizes, and has collected an extensive library in various languages on the iconographic art form.

Dr. Snihurowycz's "St. Apollonia" hangs in the reception area of the newly renovated Board Rooms at CDA headquarters in Ottawa. Δ



Obtain "St. Apollonia" photo free with a \$40.00 donation.

Obtain "St. Apollonia" Photo Free

A beautiful 11" x 14" ready to be framed full colour photo of Dr. Taras G. Snihurowycz's iconographic rendering of **St. Apollonia** may be obtained **FREE** with each \$40.00 tax deductible donation towards the **LIBRARY TRUST FUND**.

Each photo will be accompanied by a short history of the Saint who pleaded to God that all dental pain sufferers may find relief in her name.

Send a CHEQUE for \$40.00 to the
LIBRARY TRUST FUND
1815 Alta Vista Drive
Ottawa, Ontario, K1G 3Y6

(Mark "Apollonia" on the outside of the envelope)

The Library Trust Fund extends sincere gratitude to Dr. Snihurowycz for permission to photograph and copy his iconographic creation.

Over thirty-five years ago, in 1950, dentists of vision and faith established *The Canadian Dental Association Library Trust Fund*. Its mandate, "for the benefit of the dental profession and for the information and benefit of the public who are interested in the history and practice of dentistry", is just as vital today, as it was in 1950.

Your 1991 donation will assure continuance of this worthy project. Δ

“Yes” to CDAnet



(L. to R.) Dr. Les Allen, President-elect; Mr. Jardine Neilson, Executive Director; Dr. Gilles Dubé, President; Dr. Bernie Dolansky, Vice-President and Dr. Jim Brookfield, Ontario representative to the CDA Executive Council.

On November 23rd 1990, CDA representatives listened intently as the Ontario

Dental Association Board of Governors voted “Yes” to CDAnet. Δ

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	December 31, 1990	November 30, 1990
Bond & Mortgage Fund	77.86192	77.08247
Common Stock Fund	15.75389	15.33656
Money Market Fund	53.87087	53.32115
Balanced Fund	30.09098	29.65033

G.I.C. Fund Term	*Interest rates as at	
	December 31, 1990	November 30, 1990
1 yr	10.85%	11.50%
2 yr	10.55%	11.25%
3 yr	10.55%	11.25%
4 yr	10.60%	11.10%
5 yr	10.55%	11.05%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

December 31, 1990	November 30, 1990
\$127,606,287.30	\$125,834,066.10

For further information:



Write:
CDSPI
Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:
Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117

Royal College of Dentists of Canada Appoints Chief Examiners

At the August meeting of the Council of The Royal College of Dentists of Canada, Dr. K. Neil Munro of Toronto was welcomed as the new representative of the Orthodontics section, succeeding Dr. Claude Baril. The appointment was effective in August 1990. The Council also gave approval to Examiner-in-Chief Dr. Keith Titley's recommendations for new Chief Examiner appointments effective January 1, 1991. Δ



Dr. K. Neil Munro,
Toronto
Representative,
Orthodontic Section



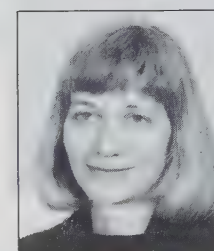
Dr. R.G. Romcke
Dental Public Health



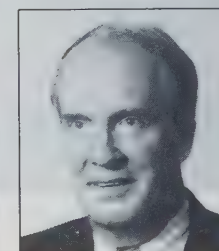
Dr. W.H. Christie,
Winnipeg
Endodontics



Dr. D.S. Precious,
Halifax
Oral and
Maxillofacial Surgery



Dr. P. Sikorski,
Toronto
Oral Radiology



Dr. R.W. Faith,
Montreal

Ash Temple Contributes to Dental Standards



(L. to R.) Dr. Pierre Desautels, Université de Montréal; Mr. Gary Jarvis, Ash Temple Ltd.; Dr. Ralph Barolet, Dean, McGill University and Chairman of the Committee; Dr. Peter Williams, University of Manitoba; Dr. Leonard Johnson, University of Western Ontario.

Mr. Gary Jarvis of Ash Temple Ltd. presented a generous contribution to members of CDA's Dental Materials and Devices Committee to assist in their attendance at the meeting of the International Standards Organization held in

Beijing last September. Canada provides a leadership role in world dental standards and the presence of the Committee members was highly valued for technical and scientific expertise. Δ

Restorative Tops Cont/Ed Mail

Over the past 12 months, 110 separate continuing education pamphlets were received — down from 126 pamphlets received the previous year. Restorative Cont/Ed mailings led the list with orthodontics a close second.

Restorative	15
Orthodontics	13
Practice Management	11
Implants	10
Cosmetic dentistry	7
Occlusion/TMJ	7
Periodontics	7
Endodontics	6
Oral Medicine	5
Removable Prosthodontics	3
Geriatrics	3
Oral Surgery	2
Infection Control	2
Sedation	2
Snoring/Apnea	2
Handicapped	2
Radiology	1
Prevention	1
Ethics	1
CPR	1
Reviews of multiple disciplines	9

Obituaries/Nécrologie

Boroff, William: Dr. Boroff was a graduate from the Faculty of Dentistry at McGill University in 1973 and practised his profession in Montreal. He passed away December 10, 1990.

Côté, Jean-Yves : Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1967, le Dr Côté exerçait sa profession à Longueuil, Québec.

Dunnett, Frank H.: Dr. Dunnett was a graduate of the Royal College of Dentists of Canada in 1926. He was a Life Member of the Canadian Dental Association.

Kerby, William, Aaron: Dr. Kerby graduated from the faculty of dentistry at the University of Toronto in 1951. He practised dentistry in London, Ontario.

Laporte, Joseph O.L. : Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1922, le Dr Laporte exerçait sa profession à Montréal, Québec. Il était membre permanente de l'Association dentaire canadienne.

Larouche, Joseph-E. : Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1920, le Dr Larouche exerçait sa profession à Sherbrooke, Québec.

McCarthy, Thomas Gerald: Dr. "Tom" McCarthy, a 1926 graduate of the University of Toronto, passed away on November 29, 1990 at 87 years of age. For 62 years, he practised dentistry in Winnipeg, retiring in 1988. Throughout that period, he was located in the same building only several blocks from Winnipeg's famous intersection, Portage and Main.

In 1976, Dr. McCarthy received special commendation from Pope Pius VI in recognition of 50 years of volunteer dental service to a home operated by the Sisters of the Good Shepherd.

An ardent sportsman, Dr. McCarthy was a familiar sight on both the golf links and curling ice almost until the time of his death. He was a life member of both the Manitoba Dental Association and the Canadian Dental Association.

Swartout, Helen Champion: Dr. Swartout passed away on December 26, 1990. A 1948 graduate of the University of Toronto, she practised for 25 years in Melfort, Saskatchewan and 5 years in Swift Current, Saskatchewan prior to her relocation to Alberta.

Peter Stevens Appointed J & J Vice-President

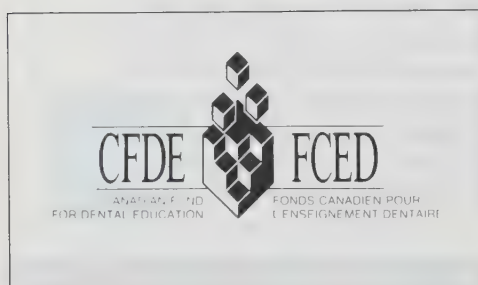


Peter R. Stevens

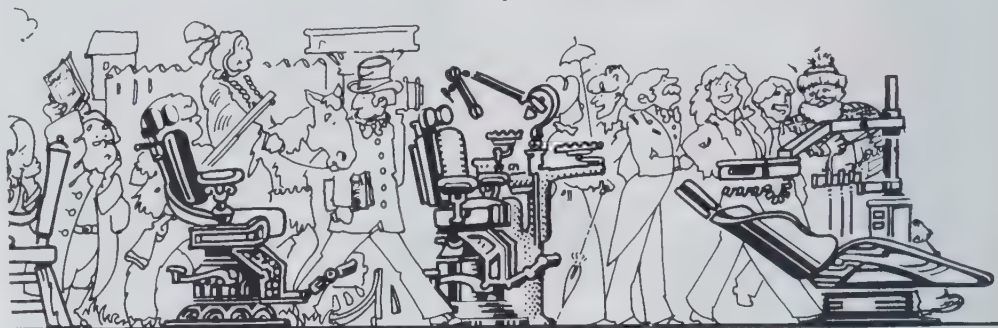
Johnson & Johnson's Dental Division has recently consolidated its Industrial and Export sections into a single Commercial Products Division. Peter R. Stevens has been appointed Vice-President and General Manager. Mr. Stevens has been with J&J since 1987; initially as Director of National Sales in Health Products and recently as General Manager in the Industrial Division. He also continues his role as a member of the Management Board of Johnson & Johnson Inc.

Mr. Stevens, who holds an Honours Degree in Commerce from St. Mary's University in Halifax, has had an outstanding career in sales and marketing. Beginning his career with American Motors in 1973, he moved through the corporate strata with Monogram Industries in Oakville and Carter-Wallace in Mississauga.

Married with two children, Mr. Stevens enjoys marathon running, tennis and skiing. When asked his personal goal he replied, "To take on a major role with a leading company in the health field which offers the opportunity to impact positively on the growth and development of other people". △



Yesteryear In The Journal



50 Years Ago This Month. . .

- Dr. W.W. Woodbury of Halifax was CDA President and Dr. J.S. Bagnall, also of Halifax, served as Secretary Treasurer — a position he held for 11 years.
- Frederick J. Conboy, DDS, was mayor of Toronto (Dr. Conboy was CDA President in 1929).
- Canada was at war 50 years ago and a news item in the *Journal* described an air raid in an English hospital as reported by a Canadian dentist. . .
"At the beginning of the raids there was an impression in the hospital that the whole of the German Luftwaffe had concentrated on the East end of London and on our hospital in particular".
- The Council of the College of Dental Surgeons in Saskatchewan favoured the appointment of a paid official by the CDA just as soon as finances permitted. The official would provide continuity in all the policies and undertakings of the Association.
- A new non-glare operatory lighting fixture could be purchased from National Refining for \$20.00.
- The *Journal* was sent to all 4,026 members of the *Canadian Dental Association*. △

25 Years Ago This Month. . .

- Dr. Philip S. Christie of Halifax was President of CDA and Dr. William McIntosh was serving his first of twelve years as Secretary.
- W.H. Feasby, DDS, Winnipeg, authored

an article on the "Availability of Dental Service in an Urban Community". A telephone survey showed the average waiting period for dental services was 6.2 days. Children were more likely to be refused treatment than adults who applied for denture service.

- A survey of gross income and expenses between 1953 and 1963 found the average gross income for the ten year period rose 90% from \$14,600 to \$27,700. The mean expenses were 45% of receipts. Specialists grossed an average of \$9,000. more than GP's.
- The Faculty of Dental Surgery at the Université de Montréal announced a \$2 million expansion program enabling an increase from 52 to 80 students.
- Over 4.5 million Canadians, almost 24% of the population, were receiving fluoridated water. △

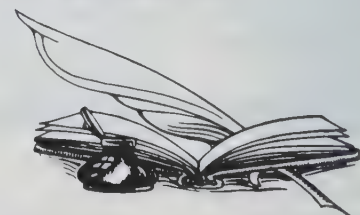
History of the "Dental Corps" 1946-86

Title: "40 YEARS of progress"

Author: Colonel (Ret'd) D.H. Protheroe

Cost: \$50.00 (Hard Cover) D2-85-1989E
\$25.00 (Soft Cover) D2-82-1989E

Phone: Govt Publishing Centre
(819) 956-4801/4802.



BOARD OF GOVERNORS NOTICE OF MEETING

The Interim Meeting of the Board of Governors of the Canadian Dental Association will be held April 12-13, 1991 (Friday and Saturday respectively) at the Westin Hotel, Ottawa, commencing at 9:00 a.m. on April 12.

It is brought to your attention that meetings of the Board of Governors are open to all members of the Association.

The Board is composed of twenty-eight governors with voting privileges and a Chairman. Governors represent members across Canada on a 1 to 500 ratio. The Canadian Forces Dental Services, Student members and Affiliate members from Québec are represented by one member each.

In addition, there are two non-voting members, namely, the senior dental representative of the Department of National Health and Welfare and the Department of Veterans Affairs.

A complete listing of the Board of Governors follows:

CHAIRMAN
Dr. N.A. Mancini
280 Barton St. E.
Hamilton, Ont. L8L 2X3

PRESIDENT
Dr. G. Dubé
Centre de la santé
125, boul. de la Providence
Lachute, Qué. J8H 3L4

PAST-PRESIDENT
Dr. K.L. Roach
351 Pembroke St. W.
Pembroke, Ont. K8A 5N5

PRESIDENT-ELECT
Dr. L.S. Allen
606 Ellice Ave.
Winnipeg, Man. R3G 0A3

VICE-PRESIDENT
Dr. B.H. Dolansky
231 McLeod Street
Ottawa, Ont. K2P 0Z8

BRITISH COLUMBIA
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350 - 2425 Oak St.
Vancouver, B.C. V6H 3S7

Dr. M. Pedersen
102 - 3401 33rd St.
Vernon, B.C. V1T 7X7

Dr. R. Smith
208 - 435 Trunk Road
Duncan, B.C. V9L 2P5

Dr. P.H. Trester
509 - 1128 Hornby St.
Vancouver, B.C. V6Z 2L4

ALBERTA
Dr. B. Sigfstead
304 - 10545 - 82 Avenue
Edmonton, Alta. T6E 4Z7

Dr. R.D. Sandilands
401 - 10080 Jasper Ave.
Edmonton, Alta. T5J 1V9

Dr. G.R. Sandercock
P.O. Box 1789
Peace River, Alta. T0H 2X0

SASKATCHEWAN
Dr. B. White
801 CN Towers
Saskatoon, Sask. S7K 1J5

MANITOBA
Dr. J. Dillon
#6 - 1875 Pembina Hwy.
Winnipeg, Manitoba R3T 2G7

ONTARIO
Dr. W.A. Glave
110 Yonge St. South
Aurora, Ont. L4G 1M2

Dr. W. Stegges
34 James Street
Smith Falls, Ont. K7A 3R3

Dr. J.R. Brookfield
Box 575
58 Government Rd. W.
Kirkland Lake, Ont. P2N 2E4

Dr. R.M. Balfour
181 Church Street
Oakville, Ont. L6J 1N3

Dr. D. Somer
75 Wendover Drive
Hamilton, Ont. L9C 2S7

To be announced.

**AFFILIATE GOVERNOR -
QUÉBEC**
To be announced.

QUÉBEC
Dr. M. Blain
3799 Lacombe
Montréal, Qué. H3T 1M3

Dr. B. Dolman
304 - 5885 Côte des Neiges
Montréal, Qué. H3S 2T2

NEW BRUNSWICK
Dr. R. Murray
567 St. George Blvd.
Moncton, N.B. E1C 2B9

NEWFOUNDLAND
Dr. T. Gushue
Village Mall, P.O. Box 93
430 Topsail Rd.
St. John's, Nfld. A1A 4N1

NOVA SCOTIA
Dr. I. Vogan
1545 Birmingham
Halifax, N.S. B3J 2J6

PRINCE EDWARD ISLAND
Dr. R.D. Wenn
P.O. Box 1948
517 North River Road
Charlottetown, P.E.I.
C1A 7M5

**CANADIAN FORCES
DENTAL SERVICES**
Brig.-Gen. J.F. Bégin
Director General, Dental
Services
1361 Turner Crescent
Orleans, Ont. K1E 2Y5

**STUDENT
REPRESENTATIVE**
Mr. K. Ozcan
1272 Queen St.
Halifax, N.S. B3J 2H4

American Dental College and HBV- Infected Student Reach Settlement?

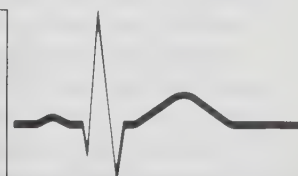
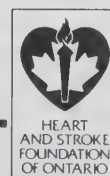
The State University of New York at Buffalo dental school, and a dental student whom the school placed on involuntary leave after testing positive for the hepatitis B virus are attempting to reach an out-of-court settlement of a lawsuit the student filed to obtain his reinstatement.

According to a report in the October *ADA News* the case began in 1989 when the student informed school officials he had tested positive for HBV surface antigen, HBV core antibody and HBV surface antibody. The school placed the student on an involuntary leave of absence and barred him from classroom and clinical work until the spring of 1991.

The student filed a lawsuit and stated in his petition that no New York state law exists requiring dental students to be tested for HBV; in addition, no state law bars HBV-positive dentists from treating patients. The student produced letters from three physicians, each an expert on infectious diseases, that stated there were no medical reasons that students could not participate in clinical training if they wore masks and gloves.

The dental school's attorney reported that all possible avenues are being explored for ways to resolve the case without further litigation. △

February is Heart and Stroke Month in Canada



Glass Ionomer Cement Mixing

Strict attention should be paid to correct proportioning of glass ionomer cement (GIC) components especially those using water as the mixing liquid. Carefully used measures can provide a mean ratio close to that recommended by the manufacturer but anecdotal evidence suggests powder-liquid ratios used in practice are often much lower.

In this study, 22 dental assistants mixed a widely-used material, Chemfil II (Dentsply) as they would for clinical use. Mean powder-liquid ratios were derived from weight loss of samples on dehydration. A wide range of ratios was used but, in no case was the manufacturer's recommended ratio of 6.8:1 achieved. The consistency measured in accordance with the Standard showed this recommended mix to be less fluid than the requirements and stiffer than other GIC restoratives. The mean ratio used in practice, 5.0:1, gave an acceptable consistency but the compressive and tensile strengths of the set cement were about half the values at 6.8:1.

It was concluded that this GIC restorative is often mixed in practice at much lower powder-liquid ratios than that recommended and that this would result in impaired mechanical properties.

Billington, R.W. et al. *Brit Dent J* 169:164-167, 1990.

(This study confirms an often overlooked essential procedure. Disappointing results with GIC may be due to incorrect mixing. It is interesting to note that the dentists in this study preferred a stiffer mix than that provided by the DA's: Ed.)

Pediatric Restorations

There has been controversy over the durability of restorative treatment in young permanent teeth. Various studies suggest that survival may be influenced by operator skill, patient variables and the nature of the material.

The fate of 1,688 amalgam restorations and 716 preformed crowns placed over a 10-year period by one operator was analysed statistically. The amalgam (Tytin; Kerr) was hand condensed using a lining (Dycal-Dentsply) and a varnish (Copalite; Stardent) where appropriate. Restora-

tions were burnished and polished at a subsequent visit. Ni-Chro (3M) crowns were used, cemented with a reinforced ZOE (Kalzinol; Dentsply) or glass ionomer cement. A rubber dam was usually employed.

The replacement rate, true failure rate and 5-year survival estimates respectively were (%):

- Primary molar amalgams
Class II 14.7, 11.6, 66.8; median survival > 7.5 yrs
- Permanent molar amalgams
Class II 9.8, 8.0, 82.2; median survival > 8.5 yrs
- Preformed crowns
All 2.8, 1.9, 92; median survival > 7.6 yrs

No relationship was found between age of the patient and the age of replaced restorations. There was no significant difference between the survival rates of the amalgam restorations in primary or permanent molars.

Development of proximal caries was the reason for replacement in 35% of molar amalgam restorations. Fractured fillings were the cause of replacement in another 38% of these cases — probably because of insufficient bulk. The major reason for the failure of the crowns was occlusal wear leading to perforation.

Roberts, J.F. Sherrif, M. *Brit Dent J* 169:237-244, 1990.

Special thanks to **THE DENTALETTER**,
December 1990.

Providing about 25 concise summaries in each eight page issue THE DENTALETTER keeps dentists' clinical knowledge up to the minute with only a 1/2 hour of reading per month. For subscription information contact 133 Richmond St. W., Toronto M5H 3M8, telephone (416) 869-1777.



Seattle is Site of 132nd Annual Session

Seattle, the Jewel of the Northwest, will host the Association's 1991 Annual Session, October 5-10.

The scientific session, October 5-8, will include:

- More than 75 scientific courses on varied topics of the art and science of dentistry;
- Participation workshops on several dental procedures and technological advances;
- More than 800 technical exhibits;
- Table clinics, student table clinics and scientific exhibits on a full range of dental topics;
- Special events including the Opening Session, Spouses' luncheon, an international reception and the President's Dinner Dance.

For further information, write the Council on ADA Sessions and International Relations, *American Dental Association*, 211 E. Chicago Avenue, Chicago, Illinois 60611, or call (312) 440-2726.

FACING THE CHALLENGE OF CHANGE

at LES JOURNÉES DENTAIRES DU QUÉBEC 1991

"Facing the Challenge of Change" has been selected as this year's theme for **Les Journées dentaires du Québec** which will be held at the Montreal Convention Centre from **May 26-30, 1991**.

The dental profession is truly evolving at a frenetic pace. In order to effectively face the challenge of change, the dentist and his team must keep themselves **INFORMED**. Les Journées dentaires du Québec is meeting this challenge. The Executive Committee has assembled a comprehensive five-day meeting highlighted by established national and international speakers. An expanded program of hands on courses will enable the dental team to acquire practical skills which can then readily be applied to the daily practice of dentistry.

The pre-convention program, to be held on Sunday May 26th and Monday May 27th, features high-calibre lectures and hands on courses. Separate fees are required for these presentations.

On Sunday, May 26th, Dr. Richard Simonsen (St. Paul, MN) will discuss **"The Esthetic Bonding Revolution and Clinical Techniques in Restorative dentistry"**; Dr. Torsten Jemt, from the Bränemark Clinic in Sweden, will conduct a two-day prosthetic training course on osseointegrated implants. The theoretical session will be held on Sunday, May 26th and the hands on session on Monday, May 27th. On Sunday, May 26th, Mr. Imtiaz Manji (Vancouver, B.C.) will conduct a hands on course on computers, **"The First Step to High Tech"**. This course is designed for dentists and auxiliaries who know little or nothing about computers and are looking for both hardware and software to suit their office needs.

On Monday, May 27th, Ms. Paul Perich (Chicago, IL) will provide participants with a valuable marketing approach that is most relevant in our current economic times. This course entitled **"The Efficiency of Marketing! A Management Approach"** will enable attendees to analyze the strengths and weaknesses of their practice and to identify market opportunities. Two other hands on courses will also be given in French, one by Dr. Pierre Boudrias entitled **"Les restaurations temporaires en prothèse partielle fixe: les aspects techni -**

ques, biologiques et esthétiques" and one by Dr. André Prévost entitled **"La dentisterie cosmétique: perception des teintes, des opaques et du patient"**.

The convention proper will be held from Tuesday, May 28th to Thursday, May 30th. For a flat registration fee of \$150

out-of-province dentists will receive three lunches, tickets to a social evening and access to the exhibits and scientific sessions. The featured clinicians of the English program include: Dr. Crawford Bain (Halifax, N.S.) - *Periodontics*; Dr. John Blomfield (Montreal, Que.) - *Operative Dentistry*; Ms. Jennifer de St. Georges (Monte Sereno, CA) - *Prac-*



A view of the downtown area taken from Mount-Royal

tice Management; Dr. Raymond Greenfeld (Richmond, B.C.) - *Endodontics*; Dr. David Kennedy (Vancouver, B.C.) - *Paedodontics/Orthodontics*; Dr. John Molinari (Detroit, MN) - *Infection Control*; Mr. Brian Payne (Candiac, Que.) - *CPR*; Dr. Ralph Philipps (Indianapolis, IN) - *Restorative Materials and Glass Ionomers*; Dr. Eugene Williamson (Evans, GA) - *Orthodontic*; and Dr. Robert Winter (Brookfield, WI) - *Restorative Dentistry*.

An equally comprehensive and excellent French program will be presented concurrently.

During the Convention, over 305 technical exhibits will highlight the latest in dental materials and equipment. This will enable dentists and staff to save considerable time in updating their office inventory. The high-tech equipment that is currently changing the face of dentistry will also be on display. There will also be many draws and valuable door prizes for pre-registrants and attendees in the Exhibit Area.

For a preliminary program and tourist guide of Montreal, please contact:

Les Journées dentaires du Québec
625 René-Levesque Blvd West
Montreal, Quebec H3B 1R2
Tel: (514) 875-4890 or 875-8511
Fax: (514) 875-1561



Confection Advertising One-sided

I recently received a package of pamphlets titled, "Recent evidence sheds new light on tooth decay" from the Confectionery Manufacturers of Canada, presumably to hand out to my patients. I deplore this type of one-sided advertising.

I am grateful the *Journal of the Canadian Dental Association* has never accepted advertising from the Confectionery Manufacturers (unlike other dental publications). I was also pleased to read the opinion piece, "The other side of confection use and dental caries", in the October 1989 issue of the JCDA by the eminent biochemist Dr. I. Kleinberg of Stony Brook, New York, formerly of Manitoba.

I recently wrote to the Confectionery Manufacturers Association and referred them to the classic Vipeholm Study conducted in Sweden about 30 years ago which described adhesion to plaque by sticky foods, thus preventing clearance by saliva. I suppose I shouldn't be surprised that the Confectionery Manufacturers pamphlets make no mention of the stickiness and adhesion of most confections.

H. Tregebov, DDS
Winnipeg, Manitoba

Journalistic Irresponsibility

I wish to voice my total discontent with both the producers of the CBS program "60 Minutes" (December 16, 1990), and with Dr. Murray Vimy for the manner in which the feature on mercury in dental amalgam was presented. It was classic journalistic irresponsibility. The report

was opinionated, poorly researched and erroneous. It slanted the facts, used scare tactics and highlighted flawed scientific data.

Dr. Vimy's claim that dental amalgam is an etiology of multiple sclerosis is an irresponsible one; so too is his call for a total ban of the material. He and the producers at CBS should stop and consider the effect such unfounded claims have on the psyche of the general public. Our patients rely on us to administer the correct treatment modality in relation to their medical history, dental history, dental prognosis, economic situation, and personal choice. Not all treatment modes are applicable for all patients.

The media and health care professionals like Dr. Vimy should also consider the anxiety such a story creates, particularly when our profession has made great strides in recent years to make dentistry more comfortable, so that more people seek regular dental care.

Dental amalgam has been in use for over 150 years and through research the material's properties have been greatly improved. It is still the most durable and economical restoration available. Composites, which Dr. Vimy purports as the best alternative, are not as durable and if not properly handled can be toxic to the dental pulp and periodontium.

I would suggest that in the future Dr. Vimy and the producers of "60 Minutes" show some professional responsibility since in any debate *all* sides should be *fairly* represented.

Gary L. Hedge, BSc, DMD
Winnipeg, Manitoba



Sheep 'Baaad' Amalgam Recipients?

I received the CDA information package containing a letter for patients concerning dental amalgam. In the sixth paragraph it states that the anti-amalgamists have staked a lot of their claims about the hazards of amalgam on the results of placing amalgams in sheep.

Well, I too have long been a staunch opponent of placing amalgams in sheep. They are not good at brushing and flossing, they are not reliable when it comes to keeping appointments, they don't keep their mouths open, have an offensive

odor, and I have never been able to explain anything to a sheep. They also don't tolerate rubber dam all that well.

In the next paragraph it states that Dr. Vimy and his colleagues spend a considerable portion of their time examining sheep feces for traces of mercury after placement of these amalgams. I must commend these dauntless researchers, for they are not only fearless about inhaling mercury vapours themselves; they in fact inhale vapours far more dangerous than mercury in the course of their work on our behalf.

The whole statement from the CDA does, however, leave some unanswered questions for me. First, does Dr. Vimy plan to examine sheep feces for other dental materials like composite, calcium hydroxide, zinc oxide-eugenol, and alginate? Will his research be confined to sheep in the future, or will he be willing to examine pig feces as well? What brand of rubber gloves does Dr. Vimy prefer for his work on sheep? What brand of rubber boots?

William D. Saliken, DMD
Nelson, British Columbia



EDI

The *Canadian Dental Association* is to be congratulated for initiating CDAnet. Surely EDI is inevitable and to turn control to forces other than organized dentistry would be of no benefit to either dentists or patients.

When Southam's *Oral Health* took such a negative editorial approach it was too bad they didn't get all the facts correct.

Ross J. MacKillop, BSc, DDS
Cambridge, Ontario

DON'T RUSH YOUR BRUSH

DENTAL HEALTH

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CANADIAN DENTAL ASSOCIATION

CDSPI Reports



Considering a computer system? CDSPI can help you make the right decision

Are you aware of the essential role computerization can play in successful dental practice management? Today, computers are considered a basic element of business and personal life. They have earned wider acceptance as their versatility and speed of operation increases.

Many dentists are starting to realize the advantages, if not the absolute necessity of including computer resources in their practices. However, many of these same dentists delay in making their decision to install a computer system because they are asked to make a decision on something they know little or nothing about.

To meet these ongoing concerns in the marketplace, CDSPI decided it was time for an organization with a 30-year track record of service to the dental profession to step in and make available a trustworthy reliable product. CDSPI's Dental Office Management System (DOMS)TM is the end result of a survey conducted among 1,000 dentists to find out what kind of computer system would best meet the needs of a dental practice.

DOMS was officially introduced to Canada's dental profession in October 1987. Since then, DOMS has undergone periodic changes and enhancements and the system is now considered the benchmark in computerized office management systems for our profession. It presently offers the convenience of an Appointment Manager, Treatment Planning and Pre-determination and Insurance Patient Tracking on statements and receipts. Dedicated to keeping pace with developments in the marketplace, DOMS also offers the scope of CDAnet (Electronic

Data Interchange).

DOMS is a true multi-user, multi-tasking computer system that allows a variety of tasks to be done concurrently. You can zip through previously frustrating chores like claims, statements, patient recalls, day sheets and day ends. You can call up financial data (trial balance, overdue accounts receivable, profit and loss statements), at the touch of a key and your staff can use the time saved to prospect for the hidden profits in your practice.

No other dental office management system delivers such a wide range of benefits with more enhancements being added on a regular basis.

In a recent announcement, CDSPI announced another major development that is extremely good news for anyone who is planning to computerize their office system: MEDI-DENT and DOMS have formed an alliance that allows dentists to lease CDSPI's Dental Office Management System. For only \$450 per month plus PST and GST, based on a 5-year lease, you can enjoy all the benefits of this \$19,695. state-of-the-art computerized system that is designed to meet the special needs of your practice.

The leasing package includes: 1 Compaq 386N/16/40 megabyte Hard Disk Drive and Microprocessor, 1 Compaq VGA Colour Data Monitor, 1 Data Monitor Cable Extender, 1 60 megabyte tape backup, 1 Hewlett Packard Laserjet Series III printer, 1 surge protector power filter, 1 communication modem to connect your system to CDSPI, 1 DOMS software, 1 Operator's Manual and 25 hours

of 'hands on' training, plus reliable telephone support every day of the working week.

CDSPI is proud to announce this arrangement with MEDI-DENT, Canada's best known equipment financing facility for the dental profession. Their proven record and experience mean that you can have a financing partner who uses a flexible, creative approach and who is committed to supporting your practice with financial resources. They're committed to helping their customers grow and expand their opportunities — a philosophy shared by CDSPI, your service organization.

MEDI-DENT and DOMS look forward to a long, satisfying association that will benefit dentists, just like you, and Canada's dental profession.

CDSPI feels that the availability of leasing removes the last reason to delay making a positive decision to install our Dental Office Management System in your practice. If you agree, you can get more information about DOMS, the system's features, leasing plans and arrangements for your personal demonstration, by calling CDSPI today using our toll-free lines.

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The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

The Three "Bs" of Effective Letter Writing

• Be clear

Simplicity is the key to good writing. Avoid dental jargon and use short words that are easy to understand. Write short sentences that follow a logical progression. Create paragraphs that are generally no longer than three to four sentences.

• Be conversational

Sometimes, people think that good writing is full of fancy language written in an elevated way. In fact, a conversational style is much more direct; it is easier to get your point across if you write like you talk.

• Be friendly

Written communication is intended to make patients feel closer to your practice, not distance them from it. So keep your tone friendly and warm. You might want to pretend, for example, that you are writing a letter to an old friend.

Patient Communication: Make It Letter Perfect

A key to your practice's success can be summed up in one word: communication. One of the most powerful forms of communication is the written word — cards and letters sent to your patients on a regular basis. Written communication is a "human touch" that can make patients feel good about their decision to have you as their dentist, and help encourage them to keep coming back.

These pieces, which can be used to commemorate special occasions or thank patients for their efforts, extend the range of your practice's communication far beyond your office walls. They reach patients where they live, and help reinforce the important message that has been delivered during the patient's dental visit: yours is a caring and appreciative practice.

It is simple to put this powerful communication tool into operation. The first thing you and your dental team should do is determine the types of cards and letters you want to send to your patients, and decide which team member will take charge of developing and implementing this endeavour. Then, in consultation with other members, that person can create prototypes of these communication pieces. During a staff meeting, review these and discuss any changes. When the team is satisfied, you are ready to send your letters out into the world.

With slight modifications your correspondence models can be used repeatedly. The basic correspondence can be personalized simply by typing the letter with the patient's name in the appropriate spots, or further customized by modifying the content of the correspondence. Remember, written communication provides one more "human touch" to your practice; don't dehumanize it by simply inserting the patient's name into an existing slot on a photocopied sheet — take the time to do it right. If your practice is computerized, enter these letters onto the office computer and make the entire process simple and efficient.

In addition to correspondence models, you will also require a system to keep track of all important dates. For example, if you decide to send birthday cards, a simple mechanism will be required to record and access patients' birthdates.

What kinds of cards, notes, and letters should you send? That is entirely up to you and your dental team. But to help you decide, here are a few categories of written communication to consider:

• Referral Letter

To a large extent, the success of your practice hinges on its ability to attract new patients. Statistics have shown that the majority of new dental patients are referred by current ones. Sending a handwritten thank you note to a patient who recommends your practice to someone else is a good way of showing how much you appreciate the effort. A handwritten thank you note should also be sent to physicians, pharmacists or other health care professionals who refer a new patient.

• Welcome Letter

It is also vital to acknowledge the person on the other end of the referral — the new patient. Sending that patient a letter before the dental visit enables you to introduce your practice and its policies prior to the first appointment, and extend a welcome that will positively reinforce the patient's decision to visit your practice.

• Treatment Letter

Sometimes patients undergo extensive treatment that has been particularly lengthy or arduous. To acknowledge their efforts, and to thank them for following through to the end of treatment, you might want to send them a post-treatment thank you letter.

• Special Occasion Cards/Letters

Birthdays, the anniversary of a patient's first visit, the birth of a child, are all occasions worth commemorating with a card. There are also sad occasions that can be marked with a sympathy card. Cards such as these add one more "human touch" to your practice by demonstrating that you care for the patient as a person.

• Children's Letters

It is often easy to overlook children as an important and enthusiastic recipient of communication. Sending children cards or letters — for birthdays, after treatment or to welcome them to your practice — lets the child know that you think they are special. Since children love feeling special (and getting their own mail), this small effort will help make their visits more positive experiences for everyone.



The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

TMJ and Whiplash Injuries: An Overview

L'ATM et les traumatismes crânio-cervicaux; un aperçu général

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COLBY, KERR AND ROBINSON'S COLOR ATLAS OF ORAL PATHOLOGY

H.B.G. Robinson and
A.S. Miller

*Fifth Edition, 1990. J.B. Lippencott Co.
198 pages, 478 colour illustrations
\$48.50 U.S.*

This book is best described as an illustrated, short text of oral pathology. It covers a comprehensive spectrum of abnormalities of the oral soft and hard tissues, and takes a broader approach compared to some of the purely "histopathological" atlases of oral pathology. The emphasis is on pathogenesis, clinical presentation and histopathology while epidemiology, treatment and prognosis are generally not discussed. The authors have assembled an impressive number of illustrations for this book (543 illustrations in 180 pages). The coordinated use of clinical photographs, radiographs and photomicrographs to illustrate each condition that is being discussed facilitates a "clinicopathologic" approach to the teaching of oral pathology. The illustrations are generally of good quality although some of the clinical photographs are quite old and have a washed-out appearance. Of greater concern is the variable quality of the photomicrographs, some of which are presented in brownish-black hues, having lost all differentiation into hematoxyphilic and eosinophilic components.

The book is divided into seven chapters, beginning with an introductory chapter on Histology and Embryology. There are two long chapters, one on Diseases of the Oral Soft Tissues and the other on Neoplasms. Developmental Disturbances and Diseases of the Teeth and Supporting Structures are considered in separate chapters. Two short chapters, Non-neoplastic Conditions of the Jaw Bones and Genetic, Metabolic and Endocrine Disturbances are new to this edition. Thus the basis for the book's organization is in part etiologic considerations and in part geographic considerations (teeth and periodontium versus oral soft tissues versus jaw bones). Within each chapter, the lesions being discussed are loosely organized into groups based either on etiology, or on histogenesis but there are no formal subsections. This format does not promote the book's use as a chairside reference, which is one the authors'

goals. The Diagnostic Guide at the beginning of the book does not really overcome this problem, because a large number of lesions of diverse clinical and radiographic appearances are simply listed alphabetically under a few headings such as Radiolucencies, and Swellings and Enlargements. A clinician seeking to identify a swelling observed in a patient is thus presented with a formidable list of 94 entries which include acromegaly, angioneurotic edema, condyloma acuminata and ameloblastoma. The use of subsections in the Diagnostic Guide based on the distinguishing clinical characteristics of different lesions and the elimination of repetitive entries such as "gingiva-leukemia" and "leukemia-gingival enlargement," and "dilatant enlargement" and "gingiva-dilatant" would make the Diagnostic Guide more useful.

Despite the authors' tendency to present information in large, rather unstructured blocks, this pictorial guide to abnormalities of the oral tissues should prove useful to dental students and teachers of oral pathology as an adjunct to standard textbooks of oral pathology. One might want to argue with the placement of Erythema multiforme and Recurrent aphthous ulcers under Conditions Resulting From Altered Immune States, when current understanding of the pathogenesis (immunologic or otherwise) of these conditions is so sketchy. Similarly the placement of Epithelial dysplasia in a different chapter from Squamous cell carcinoma, under the heading of Inflammatory, Infectious and Reactive Conditions, is rather surprising. Those who already have some background in the facts and theories of oral pathology would benefit most from this extensively illustrated guide to oral pathology.

*Reviewed by:
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University of Toronto.*

CROSS INFECTION CONTROL IN GENERAL DENTAL PRACTICE

David Croser and John Chipping

*Quintessence Publishing Co. Ltd.
London, U.K., 1989.*

Infection control has been a major topic of controversy over the past five years and continuing education courses and

dental articles have spent much time dealing with the subject. That a textbook devoted to a current treatise of the subject be published was inevitable. Such a book would have to be comprehensive but succinct, scientific yet practical, and authoritative without being pedantic. **Cross Infection Control in General Dental Practice** satisfies these criteria. The authors are experienced and knowledgeable general practitioners who have condensed a complex and often boring subject into 120 pages of readable and occasionally amusing text. These British authors write with a U.K. bias and perspective which should not dissuade North American readers.

Following the usual forward and preface there is a list of useful definitions pertaining to the topic. The authors have arranged the remainder of this soft cover book into 12 chapters, 3 appendices, and an index. An appropriate quotation commences each chapter. For example, the comment by Oscar Wilde that "the truth is rarely pure and never simple" is most apt for the chapter on ethical, moral, and legal issues. Amusing relief is provided by pertinent refreshing illustrations which are interspersed throughout the book. The chapters which range in topic from natural defences, through disinfectants, to dental laboratories are easily read principally because of the authors' style and their decision not to clutter each page with references. Academic purists may abhor this format; however, the third appendix is devoted to a list of useful references. The first appendix provides a useful method of informing patients on infection control via a form letter and health history questionnaire. The second appendix contains practical information by listing the preferred method of sterilizing dental instruments and equipment.

For the most part the text is correct, current and provides useful details in unambiguous language. The book however, does have its faults. Considering the significance of HIV infection and AIDS, the section on Immunity is too brief and simplistic. Details on the chemoclave would have enhanced the chapter on sterilizing techniques. The authors are confused about the uses of glutaraldehydes. In an early chapter they emphasize that such solutions are "not a surface disinfectant" but in a later chapter they suggest that all counter tops, bracket tables, handles and switches be decontaminated by (among other chemi-

cals) a 2% glutaraldehyde solution. The contradiction illustrates the confusion which surrounds the use of chemical sterilants and disinfectants in dental practice. However, the authors must be complimented for defining "shelf life", "use life", and "reuse life" which are often incorrectly applied to such chemicals.

This small book is current, concise but comprehensive as illustrated by the inclusion of a chapter on dental laboratory procedures — significant but often ignored features of infection control programs. It will be welcomed by colleagues who wish information on this topic that is distilled into a compact reference source. The style of the book is such that it will be easily read and enjoyed by all members of the dental team. It is highly recommended.

Reviewed by:
John Hardie, BDS, MSc, FRCD(C)
Chief,
Department of Dentistry,
Ottawa Civic Hospital,
Ottawa.

ANATOMY OF ORIFACIAL STRUCTURES

Brand & Issehard

1990, The C.V. Mosby Company

In the preface the authors attribute the success of this book (which is now in its fourth edition since 1977), to the integrated coverage of the three areas of dental anatomy, oral histology, and head and neck anatomy. They state "... we have consistently tried to begin at a very basic level" and "none of the areas was designed as a complete reference text. . ." Both promises are amply fulfilled.

The book contains three major sections: Oral histology and embryology (100 pp), Head and neck anatomy, (96 pp), and Dental anatomy (241 pp). These proportions presumably indicate the importance which some American dental schools attach to each of the topics. The text is written in a clear, chatty and informal style which some might find irritatingly condescending but which I liked. For example, "Now let us consider what would happen if we. . ." A simple squamous epithelium is like "fried eggs poured together in a big pan."

The shapes of teeth do not seem to have changed since I was a student but they

apparently need much longer descriptions. The authors illustrate the tooth anatomy section with beautiful but over-dramatized drawings from Zeisz and Nuckolls (1949). Real teeth do not look like that. Much more successful are the photos and plaster casts (to reduce reflected highlights) used by Kraus, Jordan and Abrams (1969, but now close to a second edition) and the photos in Wheeler's Dental Anatomy, Physiology and Occlusion (1984), now edited by Major Ash. This section does however contain over twenty excellent photographs of dental anomalies. An earlier photograph of a "typical torus palatinus" is surely incorrectly captioned.

Not much happens over a hundred years to change head and neck anatomy. Although the text is clear and well-illustrated by the few original drawings in the book (most are reproduced from other texts), it is too short. For example, the text on venous drainage highlights by name only four veins in the head.

Unlike most descriptive anatomy, advances in oral histology and embryology are made almost monthly. The text ignores most of the advances made in the last thirty years: enamel is 96% inorganic (by weight or by volume?); nearly all enamel lamellae are post-eruptive faults;

a primary cuticle is always present; the secondary enamel cuticle is the epithelial attachment; mesenchymal cells in the adult pulp are readily available for producing new odontoblasts. Terms such as mucopolysaccharides are now long out of date. And the new edition maintains the formula $\text{Ca}_{10}(\text{PO}_4)_6 \cdot 2(\text{H}_2\text{O})$ for hydroxyapatite which was present four editions ago. In many ways, a student would be better informed by a 1960 text of Scott and Symons or one of Orban.

This presumably very successful book seems to epitomize the approach of many educationalists. Each chapter begins with a list of objectives and ends with review questions. Each section ends with a multiple choice questionnaire. If a topic is contentious or difficult it is avoided. Why? Because students should be protected from the stress of having to make up their own minds from the available evidence? If something cannot be framed into a "right or wrong", "yes or no", question then not enough is known and it is therefore given shallow treatment. Very distressing.

Reviewed by:
Dr. J.W. Osborn
Dept. of Oral Biology
Faculty of Dentistry
University of Alberta

1991 Canadian AIDS Conference Enhancing Partnerships for the 1990s

ANNOUNCEMENT

Vancouver, British Columbia
April 14-17, 1991

This 1991 Canadian AIDS Conference is organized in partnership by the Canadian AIDS Society, the Canadian Hemophilia Society, the Canadian Public Health Association and Health and Welfare Canada.

Recognizing the importance, urgency and challenge involved in HIV/AIDS work, the sponsors invite you to use this supportive and caring environment to:

- Increase knowledge and skills development in prevention, care, treatment and support
- Evaluate past and current approaches for successful future AIDS programming
- Enhance partnerships and work towards establishing consensus on programming and policy directions for the 1990s

This Conference is for people working on the front-line in AIDS prevention in Canada — public health workers, PLWA/HIV, counsellors, care-givers, educators, and volunteers. It is also intended for those in the policy and planning fields — from federal, provincial/territorial and local governments, hospitals, and professional groups.

For more information, please contact:

Conference Secretariat
Canadian Public Health Association
400 - 1565 Carling Avenue

Ottawa, ON K1Z 8R1
(613) 725-3769 (phone)
(613) 725-9826 (FAX)

LET THE CANADIAN DENTAL ASSOCIATION AND TOURCAN INC. TAKE YOU TO...

FDI 1991 * MILAN, ITALY

OCTOBER 7 - 13, 1991



THANKS TO BONECHI EDITORE - FIRENZE FOR PERMISSION TO REPRODUCE PHOTO

The Canadian Dental Association in co-operation with TourCan Inc. invites you to participate in the 1991 FDI Congress being held in Milan, Italy, October 7-13, 1991.

Four exciting tour packages have been developed for your enjoyment:

Itinerary #1 - Burgundy/Lyon/French Riviera - Milan (15 days)

Itinerary #2 - Champagne/Alsace/The Rhine/Swiss Alps - Milan (15 days)

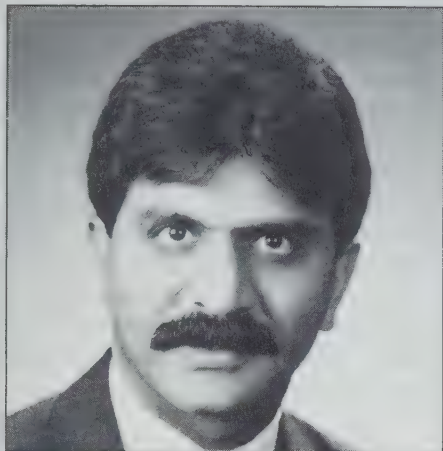
Itinerary #3 - Rome/Florence/Venice - Milan (13 days)

Itinerary #4 - Greece & Italy with a Deluxe Cruise aboard the famous Orient Express (16 days)

To book space on one of the tours contact David at **TourCan**, at **1-800-263-2995** (in Toronto, call 416-787-0334). To receive information about the Congress contact Janice Edgar at CDA Conventions, 1-800-267-6364 (East) or 1-800-267-6354 (West).

DEADLINE FOR TOUR REGISTRATION - FEBRUARY 28, 1991

Practice Management & Success



Editor's Note: The Journal is pleased to begin a new monthly column. **Practice Management and Success** will examine techniques and methods used by modern dental practices to generate and maintain success. Each column will be accompanied by a discussion on technology in dentistry. The column is written by Imtiaz Manji of ExperDent Consultants Inc. based in Vancouver, British Columbia and Oakville, Ontario. Mr. Manji's long involvement with Canadian dental practices qualifies him as one of the most progressive voices for dental practice management in North America.

Imtiaz Manji, BSc
President, ExperDent Consultants Inc.



PRACTICE TRANSITION

Planning for Growth Opportunities

Much of your professional life is spent concentrating on your role of health care provider. Indeed, it is your major occupation on a daily basis. Whatever professional time you spend away from your practice typically improves your dentistry skills through continuing education seminars and courses. So long as your day-to-day financial needs are being taken care of, little attention is focussed on your role as an investor in the business of dentistry. When a dentist finally does consider his investment, it is usually sparked by a specific event: retirement, forming a partnership, taking on an associate, opening a satellite office or moving to a new facility. These are just some of the situations commonly referred to as Practice Transitions. In this article, I will look at some of the concerns surrounding practice transitions and why they must be planned carefully.



Investing in the Business of Dentistry

Health care provider, employer, adviser, producer, friend, educator, colleague, investor, businessman — each of these roles represents a different

hat you must wear as the principal of a dental practice. It may be said that prac-

tising dentistry successfully depends on the ability of the dentist to change hats quickly. Making one decision often requires balancing the disparate concerns of two or more roles you must play in your office. Treatment planning requires you to be a health care provider, educator and producer; managing your staff demands your attention as employer, friend and businessman. Much of your time is spent thinking about the needs of your patients and staff. It is little wonder that many dentists nearing retirement discover their personal needs have not been met.

In the last decade, practice transition has become a buzzword representing the latent wealth of a dental practice. To a dentist owning a practice, transitions signify a time to evaluate and possibly capitalize on their investment. Aside from that, how should practice transitions be defined? From my perspective, a practice transition occurs whenever there is a significant alteration to the operation of a dental practice. It is not limited to the sale or purchase of a practice.

As an investor in a dental business, your responsibility is to provide adequate return on your investment, improve your financial position, maximize the opportunities of your practice and plan for your eventual retirement. Often a dentist forgets to look at his practice as an investor. As a result, opportunities for growth that increase the value of the practice are neglected. Understanding how your view as investor differs from your view as health care provider allows you to capital-

ize on growth opportunities.

Two Forms of Practice Growth

Dental practices experience two forms of growth. The first comes from the **practice** of dentistry. Growth is achieved through quality of care, referrals, recognition in the community and stability. Successful dental practices invest in systems to manage the benefits of professional growth through techniques for patient retention, new patient flow, marketing and follow-up. The second form of growth comes from **business** of dentistry. Unlike the steady growth achieved professionally, business growth through practice transition opportunities occurs in dramatic leaps from one level to another.

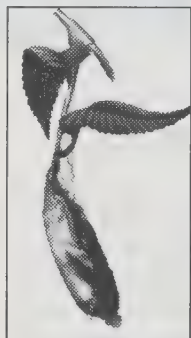
The dental community avoids positions that cast dentistry as a business. We pepper our language with phrases like "case presentations" and "new patient experience". These are soft terms describing the process of treatment acceptance and how effectively a practice "sells" appropriate dentistry to a patient. Of course, dentistry provides needed treatment to maintain a patient's oral health, but the distinction between prescribing required treatment and selling dental procedures blurs in the realm of cosmetic dentistry.

"Practice Transition" is another soft reference to the business side of dentistry. Cast in familiar and gentle terms that disguise its true nature, the very phrase implies a painless, easy process and

encourages you to be remiss in your responsibilities as an investor and businessman — to let your guard down. As a result, most practice transition opportunities are poorly managed by dentists. Sadly, I have seen many practices come close to self-destruction through poorly managed transitions, particularly with respect to expansion, new facilities and associates. As an investor, you must know when to pursue growth and when to consolidate operations to protect your investment.

Practice Valuation

The easiest thing in the world to do is get a practice valuation. Call the consultant,



bring in the brokers, meet with your accountant. Each of them will tell you what your practice is worth. Each of them will give you a different value for your practice.

Equipment, leases and other tangible items can have real world values placed on them

without much effort. Determining the value of intangible assets and goodwill is more difficult. A variety of formulas are used. Regardless of what method is chosen, is the resulting value a true reflection of the worth of your practice? Probably not.

Most practices sold by retiring dentists are undervalued. The dentist who has worked hard all his life has had to make big commitments to his staff, to his bank, on equipment purchases and leases. As he grows older, he tends to slow down his practice and relax more. He practises less days a week and spends more time on leisure activities. One day, he decides to sell his practice and retire. He has the practice valued only to discover its wealth has been eroded by poor planning. A young dentist buys the practice for a bargain-basement price. In time, the retired dentist realizes his financial needs have not been adequately planned for, and he must go back into dentistry to supplement his retirement income. This is unjust and it doesn't have to happen. But it does; I see it on a regular basis across Canada.

Practice valuations are not accurate

reflections of the worth of your practice because a dental practice has no value without a dentist practising in it. The real value of a practice does not lie in what you own but rather in what you do. Before entering into any practice transition, you must know the critical indicators in your practice that determine its true value and whether the transition will be a success or a failure. Successful transitions are only possible after thorough strategic planning.

***“Most practices
sold by retiring
dentists are
under-
valued.”***



People Do Not Plan to Fail; They Fail to Plan

A successful transition cannot occur if planning only happens once the transition is in progress. Planning for transition opportunities must begin early and continue throughout your professional life. Active patients are not a reliable indicator of your practice's wealth. My research has shown that most practices have a retention rate less than 50%. For well-established practices, the retention rate slips even further since an older dentist has evolving priorities, such as spending less time in the office. Ask an established dentist how many active patients he has and he will probably say 2,000. Ask him three years later and he will still probably say 2,000. Every new patient he has seen in the last 3 years has simply replaced another patient who has left the practice.

As I have said, the value of a practice can only be partially determined by assets and goodwill. The best indicator of a successful and valuable practice is its strength in areas like patient flow, treatment acceptance and retention. These

factors will determine the success of a transition. For a retiring dentist who finances the sale to allow the new owner to pay him over time, poor patient flow, lack of retention and low treatment acceptance rates can bankrupt the new owner. This, in turn, can lead to payments being defaulted. Similarly, practice mergers must be carefully evaluated if the other practice has low patient flow or retention. After all, the purpose of the merger is not for you to subsidize another practice's weaknesses.

Increasing the Value of Your Practice

A practice valuation is a good start to the planning process since it will give you a rough idea of what your practice may be worth. But, if you want to guarantee that your practice will have a high value when you are ready to sell it, you must address issues beyond the number of active patients.

The dentist who has to sell his practice for a bargain-basement price did not understand how a practice's value is perceived differently by seller and purchaser. His investment has been a labour of love — unending in time, effort and money — that is how he values his practice. But the purchaser does not have any sentimental attachment to the practice. His concern is strictly focussed on the health of the practice relative to its price. A purchaser will not pay a premium price for a practice where he has no proof of future success. As a result, practice's that cannot prove the wealth of their patient base, cannot prove healthy patient flow, cannot prove high retention or treatment acceptance rates also cannot guarantee future success for the purchaser. These practices are condemned to minimize the return on their investment.

Spending only 1 day each month analysing and planning your practice as an investor will surely pay off as the value of your practice continues to grow each year until you are ready to retire. In next month's column, I will discuss the vital signs of a practice that determine its value and the techniques you can use to monitor and analyse them. This analysis will help you maximize your return as an investor, and will ensure fair compensation for yourself and your team as employees of the practice.

Working Definition for Practice Transition

Any change which substantially alters overheads, cash flow, facilities, ownership or management of a practice.

Common Transition Concerns

Facility

A new practice is opened, or an existing practice expands its current facility or moves to a new facility.

- Can the patient flow support the increased costs of an expanded or new facility?
- How will patient retention be affected by moving to a new facility?
- Will the new facility attract more patients to the practice?
- Will production go up faster than overheads?

Merger

Two practices combine in partnership to form a single practice.

- Will patient flow be maintained for each doctor?
- How will the change affect patient retention?
- Will reduced costs in facility be justified in light of transition costs?
- What are the specific costs and benefits of the merger?

Associate

A practice secures an associate to work in the facility.

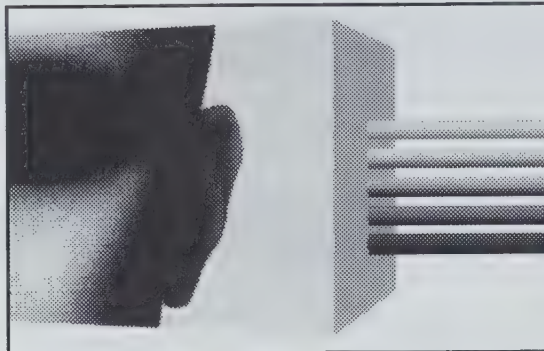
- What additional staff will be required?
- Do additional operatories need to be equipped?
- Is the patient flow enough to support an associate?
- What must the associate produce to break even on transition costs?
- What protection do I have against the associate leaving after a few years and taking some of my patients to another practice?

Retirement/Stepdown

All assets of the practice are transferred from the seller to the purchaser. The seller may remain in the practice for a short period of time to ease the transition for patients or the seller may maintain ownership of a small number of charts and become an associate of the purchaser.

- How do I determine a realistic value for my practice?
- What can I do to ensure the sale is successful?
- How do I minimize my risk if I finance the sale for the purchaser?
- What are my financial needs for my retirement?
- What steps must I take to protect myself?

NEW TECHNOLOGY



Evaluating Dental Technology

Many dental practices will feel the pinch of Canada's economic recession in the coming year. As the financial belt tightens around the waist of dental offices, areas of weakness within the practice will have a greater effect on the bottom line. Practitioners will search for solutions to combat their shrinking cash flow. Each practice is different, and the options for renewing a faltering practice are diverse.

Technological advances will be an avenue explored by many dentists. Laser technology, milling machines, video imaging, practice automation, digital radiography, voice charting, intra-oral cameras — these are all examples of technology groomed for dentistry. Each of them has the potential to radically alter the way dentistry is diagnosed, delivered and managed. More than any other time in the history of dentistry, the 1990's will be a period of technological change.

The introduction of new technologies is part of the dynamics of dentistry. Leading-edge dentists will always seek methods to improve their practice and their patients' oral health. Many technologies have the potential to revitalize aspects of your practice and can have a positive effect on your cash flow — either through reducing costs or increasing treatment acceptance. Some practices have had exceptionally strong results. However, many practices have implemented technology that has failed to live up to its purported benefits.

Success Criteria for Technology

Regardless of what technology you consider for your practice, its benefits must outweigh its costs. It is not good enough for a technology to pay for itself through reduced costs or increased production. You would only break even on your investment and, in fact, would lose money in the time you and your staff spend on education. Technology must generate results over and above your current operations.

Even if you had a truckload of money to spend on technology, it would be impossible to buy everything available. There simply is not enough room in your practice to store everything. Every operatory would look like mission control for NASA. Technologies must be chosen with a critical eye so you can reap maximum benefits. Here are some of the criteria you should use to determine the suitability of a technology in your practice:

• Price/Performance

Will the new technology pay for itself, startup costs and provide a worthwhile return on investment?

• Purpose

Will the technology increase patient participation, improve the diagnosis and delivery of dentistry, or streamline practice management?

• Effectiveness

Is the technology an effective implementation for its stated purpose?

• Redundancy

Are there office systems already in place that could be improved and achieve the same results as the technology at a lower cost?

• Scope

Are there related concerns that the technology does not fully solve? Would additional technology be required for truly effective implementation?

• Flow

Will the use of the technology disrupt the normal flow of the office and increase stress?

• Integration

Can the technology be combined with existing systems in the office and result in economies on equipment or supplies?

• Obsolescence

What is the anticipated lifespan of the technology before it will need to be upgraded or replaced?

• Commitment

Are you committed to ensure the technology is properly implemented and used by you and your team?

No one technology is right for everyone. Each of these questions that receives a positive response will increase the likelihood of a particular technology succeeding to meet your needs. In subsequent articles, I will examine various technologies being used by dental practices. These guidelines should help you evaluate the suitability of each technology for your practice.

1991 QUEBEC CONVENTION

AUGUST 24 - 28

CONVENTION UPDATE

THIS SUMMER...QUEBEC, QUEBEC!



Are you suffering from the February blues and the winter 'blahs'? Well, DON'T! Make plans now for those wonderful and wild, lazy, hazy days of summer. Just think, summer holidays, a national convention and a choice vacation destination all wrapped into one! This August discover historic Quebec while attending the 1991 Canadian Den-

tal Association Annual Convention. Quebec is a unique city with plenty of interesting sites. It's an ideal vacation site for the entire family.

Listed below is a 'sample itinerary' for those interested in extending their stay while attending the 1991 Canadian Dental Association Annual Convention. Check out the sample itinerary outlined below, choose your travel dates and take advantage of early bird discounts. Call Air Canada's Convention Central at 1-800-361-7585 to book your flights at bargain rates. Convention registration forms will be available in next month's CDA Journal.

Michel Jahjah, D.D.S.
General Chairman
CDA Convention

SAMPLE ITINERARY FOR DELEGATES ATTENDING THE 1991 CDA CONVENTION

Thurs. Aug. 22 *Bienvenue à Québec!*

Check into your convention hotel. Afternoon at leisure. This evening dine in one of the many fine restaurants located in Old Quebec. After dinner take a romantic stroll along 'Terrasse Dufferin', a charming promenade fronting the Château Frontenac.

Fri. Aug. 23

Breakfast in bed. This morning take a walking tour of Old Quebec. Visit the Citadel, Chalmers-Wesley United Church, Notre-Dame-du-Sacré-Coeur Sanctuary, Musée du Séminaire (museum), Musée des Ursulines (museum), the Royal 22nd Regiment Museum and the Centre Marie-de-l'Incarnation. Ride the funicular to Le quartier Petit Champlain and have lunch at one of the many choice restaurants located there. Afternoon at leisure. Browse in the many shops run by local artisans and craftsmen located in North America's oldest shopping area - Le quartier Petit Champlain.

Sat. Aug. 24

Participate in one of the limited attendance or hands-on pre-convention courses (all day), or take a day excursion. There are a number of options. (For more details on the destinations suggested here, refer to the article featuring 'Day Excursions' that follows.) Options: Île d'Orléans, Sainte-Anne-

de-Beaupré, Chute Montmorency, Cap Sainte-Anne Park. This evening wander over to the stream of restaurants and cafés lining Grande Allée and select dinner from a menu that wets your appetite. Evening at leisure.

Sun. Aug. 25

Attend one of the limited attendance or hands-on pre-convention courses being offered today (full day sessions), or take a tour of some of the local sites: old-port of Quebec, Du Fort Museum, walking tour of Place Royale, the National Assembly, the Civilization Museum, Villa Bagatelle, the aquarium or the zoo. Or, take a boat cruise down the St. Lawrence (1-3 hours). In the evening, attend the 1991 Opening Ceremony with your entire team and/or family. After the 'Opening Ceremony' dine in your hotel's intimate dining room or one of the many excellent restaurants in the city. (Watch the blue pages in future issues of the CDA Journal for restaurant suggestions.)

Mon. Aug. 26

Rise and shine EARLY and participate in the CDA Annual Fun Run! **Convention proper begins.** Scientific sessions, Spouse's Program, Children's Program and Exhibits. (Full day of convention activities.) Traditionally, this is the evening set aside

by the Canadian Dental Association for the Convention's grand social event. An opportunity to dine and dance with grandeur! Request tickets when you pre-register for the convention.

Tues. Aug. 27

Continuation of convention proper. Scientific sessions, exhibits, spouse's program and children's program. Another full day of exciting continuing education opportunities. Buy a light lunch in the Exhibit Hall and take time to get acquainted with your favorite suppliers' sales representatives to see what's cooking! In the evening get a gang together and plan to enjoy an evening of fun and frolic with other convention delegates at the convention's informal evening affair.

Wed. Aug. 28

Full morning of scientific sessions. Afternoon at leisure. Select another day excursion or visit more local sites. Evening at leisure.

Thurs. Aug 29 & Fri. Aug. 30

Depending on your arrival date, you may wish to use these days to explore Quebec and its surrounding environs to round out your experience in 'la belle province'. Consider a day-trip to Montreal or the scenic Laurentian Mountains.

****Please note, this is only a 'suggested itinerary', it is not an organized tour.**

1991 QUEBEC CONVENTION AUGUST 24-28

PRE-CONVENTION PREVIEW



SATURDAY, AUGUST 24

**GORDON J. CHRISTENSEN, D.D.S.,
M.S.D., Ph.D.**
Provo, Utah

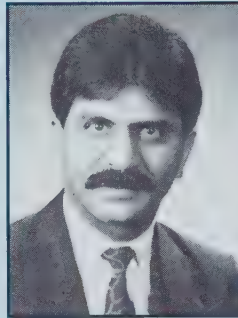
"New Aspects of Dentistry - 1991"

This program is designed to update practitioners in many of the new and useful aspects of dentistry. Very pragmatic subjects are presented and commonly occurring clinical challenges are addressed. The following subjects are included:

- * Posterior Tooth Restorations - A comparison and clinical critique of tooth colored inlays, onlays and class 2 composites with amalgam and cast gold.
 - * Fixed Prosthodontic Advances - New impression materials, accurate interocclusal records and a comparison of new cements.
 - * Preventive Resin Restorations - Making class 2 type resin serve in "sealant" indications with long wear, high retention potential.
 - * New Resins - Selection of the most acceptable restorative resin for your practice.
 - * Dentin Adhesion - A candid look at current products claiming bond to dentin.
 - * Bases and Liners - A comparison of the many new types of bases available, including traditional glass ionomer, resin and light cured glass ionomer.
- Many of the new products and techniques evaluated recently by Clinical Research Associates are also discussed.

About the clinician:

Dr. Christensen is founder and Co-Director with Dr. Rella P. Christensen of Clinical Research Associates (CRA), which conducts research on dental materials, techniques, devices and new concepts in dentistry. Dr. Christensen is founder and Director of Practical Clinical Courses, established in 1981 as a Career Development Program for dentistry. Currently he participates on the post-graduate faculties of many dental schools and is an Adjunct Professor at Brigham Young University and a Clinical Professor at the University of Utah.



SATURDAY,
AUGUST 24

IMTIAZ MANJI, B.Sc.
Vancouver, B.C.



TOM SNYDER, D.D.S.
Cedar Knolls, N.J.

"The First Step to High Tech"

Each participant will begin the seminar with an unassembled computer in front of them. Working from the ground up, Mr. Manji and Dr. Snyder will explain computer technology in straight-forward, non-technical terms and guide the participant through assembly of their own computer.

Once the computers have been assembled, they will be powered up and Mr. Manji and Dr. Snyder will continue their discussion about popular computer programs and dental practice management software.

As a participant, you will have an opportunity to see each of the programs discussed - from MS-DOS and Lotus 1-2-3 to sophisticated dental software with which you can record patient information and bill dental procedures. The seminar is assisted by several experienced computer users so everyone will have plenty of opportunity to get their questions answered.

About the clinicians:

Imtiaz Manji is President of ExperDent Consultants Inc. and founder of Exan Technologies Inc. Mr. Manji travels extensively to deliver his unique perspective on high-tech, high-touch practice management to Canadian dentists. He has a quarterly column "Practicing for Success" in which he reveals how his down-to-earth approach to technology has assisted many Canadian dentists to attain tremendous increases in productivity and financial stability.

Dr. Thomas Snyder is Director of Professional Services for Sarantos & Company, a financial and practice advisory firm serving the healthcare professions, located in Cedar Knolls, New Jersey. He is a graduate of the University of Pennsylvania School of Dental Medicine as well as a graduate of the Wharton Graduate School of Business. Dr. Snyder was a senior partner in his own nationally known dental management and computer consulting firm prior to joining Sarantos & Company Inc.

LIMITED ATTENDANCE HANDS-ON COURSE

1991 QUEBEC CONVENTION AUGUST 24-28

PRE-CONVENTION PREVIEW SATURDAY, AUGUST 24 AND SUNDAY, AUGUST 25



SUNDAY, AUGUST 25

IMTIAZ MANJI, B.Sc.
Vancouver, B.C.

TOM SNYDER, D.D.S.
Cedar Knolls, N.J.

"Managing for Financial Success"

This seminar will show you the steps you need to take to effectively manage your practice's growth and achieve personal and financial independence. Unlocking the wealth of your practice and translating it into growth and success can only be accomplished through strategic financial management and practice planning.

As a participant you will learn the critical indicators of a healthy practice, how to collect and analyze data to measure the health of your practice, and how to use planning tools like spreadsheets and financial models to simplify decision-making. Analyzing your practice on a monthly basis in this manner will reveal hidden opportunities for success in retirement planning, practice profitability, practice value, staff retention, patient flow and productivity. In addition, you will learn methods to involve your team in the success of the practice through profit-sharing, bonus structures and fringe benefits.

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SATURDAY, AUGUST 24
AND SUNDAY, AUGUST 25

TORSTEN JEMT, D.D.S., Ph.D.,
Gothenburg, Sweden

"Basic Clinical Prosthetic Training Course on Osseointegrated Implants"

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

- * Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- * Presentation of conventional treatment concepts including comments on other implant systems.
- * Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- * Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- * Prosthetic treatment planning, patient selection, indications and contraindications.
- * A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- * Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- * Presentation of patients in various stages of treatment including completed patients.
- * Discussion of possible complications and how to handle them.
- * Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

About the clinician:

Dr. Jemt obtained his D.D.S. in 1975 and specialized in prosthodontics in 1982. His Ph.D. thesis was defended at the University of Gothenburg in 1984. In 1988 he was made Associate Professor in Prosthodontics. Since 1986 he has been Associate Head of the Branemark Clinic. Dr. Jemt has presented more than 100 lectures to professional audiences and is the author of over 30 scientific publications. He is currently involved in research on single tooth replacements and has developed a single-tooth osseointegrated implant.

LIMITED ATTENDANCE HANDS-ON COURSE

CONVENTION REGISTRATION FORMS WILL BE AVAILABLE IN THE MARCH ISSUE OF THE
CDA JOURNAL - BE SURE TO REGISTER EARLY

1991 QUEBEC CONVENTION

AUGUST 24-28

CHOICE DAY EXCURSIONS FOR DELEGATES PLANNING TO EXTEND THEIR STAY

Make your stay a holiday! Bring the entire family and plan to visit some of the fascinating sites just outside the city limits. Listed below are some of the options you may wish to consider incorporating into your travel plans. Please note that these are not organized tours, they are simply suggestions to help you plan your stay.

Île d'Orléans - The Perfect Place for an Unforgettable Outing

Île d'Orléans is a living treasure chest of history, an authentic sanctuary of century-old homes, churches, mills and chapels. Take the pont de l'île, a bridge built in 1935, and follow chemin Royal (route 368) and discover the numerous traditional aspects of this part of the country. With a population of 7,000 it also serves as Quebec City's vast market place. Numerous road-side stands offer a wide array of rural products: woven articles, crocheted rugs, French-Canadian blankets, maple sugar products, jams, fruit and home-made bread.

Sainte-Anne-de-Beaupré Shrine

More than one-and-a-half million pilgrims make their way to the basilica on the Côte-de-Beaupré each year to pray to the mother of the Virgin Mary. The present basilica, neo-Roman in style, was erected in 1923. It is admired for its vast proportions and its superb stained glass windows. Open 8:30 am - 5:00 pm daily. Free Admission.

Three attractions round off a pilgrimage to Ste-Anne-de-Beaupré. **Chemin de la Croix**, open at all times, is lined with life-sized cast-iron figures scattered along the hill. During the summer, there are evening torch processions. The **commemorative chapel**, built in 1878, presents an altar dating back to the turn of the 18th century and **Scala Santa**, a chapel erected in 1871, houses a replica of the stairs that Christ mounted before appearing before Pontius Pilate.

Chute Montmorency (falls)

A few kilometres east of Quebec City, across from l'île d'Orléans, the rivière Montmorency forms one of the most impressive waterfalls in North America. Eighty-three metres high, that is, one-and-a-half times Niagara Falls, it has an average flow of 35,000 litres per second and reaches 125,000 litres per second during the spring thaw. The site de la chute Montmorency is divided into two sections, upper and lower, offering lookout

points, picnic tables, trails, buildings, historic sites, a tourist information centre, and vast parking areas. Open 8:00 am - 9:00 pm. Free Admission.

Cap-Tourmente National Wildlife Reserve

Home to more than 250 bird species, this reserve includes a nature interpretation centre and 16 kilometres of footpaths. Open daily 9:00 am - 5:00 pm. Guided Tours. Admission: Adults - \$2.50, Children (14 and under) - free.

Parc du Mont-Sainte-Anne

Located 40 kilometres east of Quebec City, this park offers golf, and mountain biking in magnificent surroundings. Fitness buffs can take advantage of the 1.2 km fitness trail. A 6.4 km cycling path and a hiking trail crisscross the forest along the river Jean-Larose.

Ride the cable car and view the scenic St. Lawrence valley. Cable car runs daily from 11:00 am - 5:00 pm. Admission: Adults - \$5, Children (14 and under) and Seniors - \$3, Children (under 6) - free.



The Île d'Orléans, Greater Quebec Area.

1991 QUEBEC CONVENTION

AUGUST 24-28

CHOICE DAY EXCURSIONS FOR DELEGATES PLANNING TO EXTEND THEIR STAY

Villa Bagatelle

An interpretation centre on the villas and garden estates of Sillery and an exhibition centre for thematic exhibits. An exceptional example of 19th century neo-gothic architecture. Its English garden includes more than 250 varieties of indigenous and exotic plants. Open: Tuesday through Sunday, 11:00 am - 5:00 pm. Admission: Adults - \$2, Children - free.

Visit the Aquarium (and have a picnic!)

The aquarium houses approximately 3,000 specimens representing 300 species. Located in a wooded area with numerous footpaths leading to picnic areas, the Aquarium offers an impressive view of the St. Lawrence, the rivière Chaudière and the Quebec and Pierre-Laporte bridges. Open daily: 9:00 am - 5:00 pm. Admission: Adults - \$3, Children (6-13), Students (14-18) and seniors - \$1.50, family rate - \$6.

Visit the Zoo

Over 1,000 specimens representing some 250 wildlife species from around the world. Bears, wild cats, primates, rodents, birds of prey, a collection of insects and a farm. Sea-lion shows, horse-drawn carriage rides and numerous services. Open 9:30 am - 6:00 pm. Admission: Adults - \$5, Children (6-13), Students (14-18) and seniors - \$2, family rate - \$10.



PLAN TO VISIT THE EXHIBIT HALL AND YOU COULD DRIVE AWAY IN A BRAND NEW CAR!



Winner of the 1990 (Ottawa) Canadian Dental Association Exhibit Attendance Grand Prize - Paula O'Riordan of Ottawa, pictured here receiving the keys from Richard Charlebois of Classic Dental Laboratories. **YOU** could be this year's lucky winner! Aurum/Classic will once again sponsor the Grand Prize Draw in co-operation with CDA Conventions.



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Getting Started: Staff Training and Data Input

INTRODUCTION: Automation is an integral part of the business evolution of the 1990's and dentistry is no exception. Insurance companies are rapidly considering Electronic Data Claims. The age of electronic systems is here. Are you ready? Do you have the information you need to make your decision? This fifth of a series of six articles on Automation in Dentistry provides some initial guidance and criteria for the software shopper.

Basic Training — Life Support for Your System

The concept of training is an important one to consider in the selection of a computer — how it's done, where it's done and how long it takes. A dental office that is computerizing needs a "Super User" — someone with talent and desire to learn the system. He/she should be the connection to the technical support department of the computer software company. He/she will need to know the language of the system, the operation of the dental software and the System Software. (The system is the engine that drives the computer). In other words, there needs to be a translator in the office. The receptionist is often placed in this position. We seldom see the dentist occupying this role.

The easier the dental software is to learn, the quicker the training period will be. Look for software that has logic, that makes sense and that has an intuitive feel to it. Excessive key commands or long lists of menu items require memory on your part. While these can be learned, the more compressed the learning period is the sooner your computerized office will be up and running. Some of the questions you'll want to ask existing clients of the software company will concern the aspect of training. Here are a few questions that will help everyone start thinking:

1. What part of the training session did



Bud Sipko

you enjoy most?

2. What part did you enjoy least?
3. Would you want to work with the trainer again? (If not, why not?)
4. How much time did the training take?
5. After the training, did you feel confident to operate the system?
6. What follow up did you receive after the training session?

A computer system that's easy to learn is also a huge benefit in the unfortunate occurrence of staff turnover. If you have to endure a staff change in your office, particularly a front office receptionist, or your super user, you'll value the quick training aspect.

Patient Input

Preparing for computerization is a wonderful "system clean-up" for your charts. Here's a method you might find helpful:

- 1) Ask the computer company for a copy of all the screens from the software that support patient/family information. This includes name, address, birthdate, Social Insurance Number, insurance information, medical alerts, next recall date, etc. This data will be part of the family information for each patient in your practice.
- 2) Start a systematic review of all your patient files to eliminate inactive files, cross-check current information and add missing information from the

screens that is necessary.

- 3) A further refinement to this process is to sort your patient accounts into those that have outstanding balances and those that have zero balances. You will enter your accounts receivable family files into the computer system first.
- 4) Some baseline training in the operation of the software program is usually necessary. This may be done in your office or at the training center of the software company. If the training is done in your office, your supplier will have worked through the placement of CRT's, printers, back-up machines and UPS's. Once you have acquired the basics, it's time to start data input.

Having all of the computer information on a worksheet will insure correct data input and reduce the time necessary to do it. You will have a clean productive and enjoyable time with this aspect of the process.

Data Input

There are two methods for inputting data: input as you start or input as much as you can before you start. Each method has its advantages and its drawbacks. The minimal data you need to input in the system is the families of record that have an outstanding account with your practice. An aged analysis needs to be conducted to check balances against the current manual system. If the figures balance you're ready to roll.

Getting Started

With everything balanced, we recommend that you spend two months running a dual system. In the theory of organizational behavior, we seldom remove structure; instead, we grow new structure and replace the old. Running your existing system for the first month, with the computer system as a back-up is a good idea. The computer then serves as the secondary system. Each day, the patients that you see must have their data placed in the computer prior to their

appointment. This can be done the day before, or when they arrive. Another option is to have someone load the entire data base before you start any dual system. The benefit here is that valuable time is saved on a day to day basis which is better used for patient care. A separate data entry person can often be hired to input the data.

After successful completion of the first month, we suggest a natural shift to the computer as the primary system and your manual system as the back up. By the third month you'll be ready to abandon the manual system and use the automated one exclusively. It's important to be exhaustive in the running of your monthly reports — the more you generate the better you'll know which are important to you. You will be pleased at the wealth of information your computer will give you access to if correct and pertinent information has been inputted into the system. Remember, to the computer it's still "Garbage in — Garbage out". Δ

Bud Sipko is a private practitioner in Richmond, B.C. Besides having a dental practice, he is the President of Selection Research (BC) Inc., a consulting organization to the dental profession specializing in helping dentists and staff members become more effective as healthcare practitioners.

Did you know?

How to Avoid Annoying a Reader

Good writers, [like those in JCDA], avoid wheel-spinning beginnings — opening sentences that say nothing and repel readers. Here are some examples with possible reader reactions:

- "It goes without saying. . ."
(So why say it?)
- "It is hardly necessary to repeat. . ."
(Then don't repeat it.)
- "We should begin by saying. . ."
(Just say it.)
- "A great deal of time and effort were required to. . ."
(Don't tell me your troubles. Just tell me what your time and effort produced.)
- "The reader will have to understand that. . ."
(Don't bet on it.)

(Reprinted from *Communications Briefings*, December 1990)



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QUEBEC 1991

CANADIAN DENTAL ASSOCIATION ANNUAL CONVENTION

AUGUST 24TH - 28TH



YES - IT'S FREE!

Members of the Canadian Dental Association do not have to pay to register for the CDA Annual Convention - all you have to do is complete a registration form and forward it to CDA Conventions Headquarters before July 10, 1991

Registration forms will be available in March - read the *CDA Journal* for details!

Porcelain Butt Margin Crowns

The Esthetic Answer to Metal Margins

Today, more and more patients insist on perfect and enduring esthetics in their anterior crown and bridge restorations. One area that gives the dental profession great difficulty in delivering optimal, long-term esthetic results is the labiogingival margin of anterior crowns.

The difficulty has always been the construction of the conventional porcelain-fused-to-metal restoration. The metal substructure upon which the restoration is based often shows through the thin, friable soft tissue at the gingival margin — a graying effect that ruins even the most beautiful porcelain crown. Even worse, if gingival recession occurs over time, the metal collar of even the most carefully planned and constructed crown often becomes exposed, completely destroying the esthetic effect that you had worked so hard to accomplish.



In the past, porcelain veneer crowns have been used in an attempt to overcome certain esthetic problems. However, they have not achieved widespread acceptance as a viable solution due to their inherent physical weakness in a number of situations. Today, there is a new alternative esthetic approach: the Porcelain Butt Margin Crown. Eliminating the traditional metal collar, these restorations combine the strength of a porcelain-fused-to-metal crown with the superb



Mr. H.J. (Hyo) Maier

esthetics of a complete porcelain labial margin.

This design requires some small adjustments in preparing a tooth to accept a Porcelain Butt Margin Crown. To begin with, the design factors typically involved in the fabrication of both standard porcelain-fused-to-metal crowns and all-porcelain veneers must be considered. Typically, the lingual metal collar of the Crown ends midproximally. However, the esthetic demands of particular case situations may dictate other locations. The

porcelain margin should be finished with either a 90-degree or sloped shoulder while the lingual metal margin should be prepared with a chamfer or shoulder bevel.

Yet, it is the coping design that truly reflects the key differences between the Porcelain Butt Margin Crown and a standard fused-to-metal restoration. The labial metal is cast only to the axiogingival line angle. This eliminates the unesthetic labial metal margin. Even more important, the increased porcelain thickness now achievable in the buildup process results in improved colour in the gingival area. And, with the metal collar now removed, tissue response to the restoration is greatly improved. If later recession does occur, there is no metal collar to expose.

The Porcelain Butt Margin Crown allows you to confidently meet many clinical situations that have previously held some esthetic risk. Ask your laboratory about this exciting alternative today. Δ

Mr. H.J. (Hyo) Maier, RDT is President of Aurum Ceramic/Classic Dental Laboratories Ltd.



How to be a Local Hero

Talk. Have a talk about making giving a family affair. When you save for your holidays, mortgage or new car, put some away for giving too. Let everyone in on the decision of which causes to help and you'll be a real Local Hero family.

A national program to encourage giving and volunteering.

IMAGINE

A new spirit of giving

In Our Profession, *Time Is Money...*

Searching from dealer to dealer for the best automobile lease can be time-consuming and frustrating. That's why the Canadian Dental Association is proud to announce its latest member service—CDA Leasing. Developed with you in mind, our leasing experts will answer all your questions and help you select the perfect vehicle for your needs. We'll also ensure you get the best possible price.

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Interview

MERCURY (And The Debate Goes On)

Ever since the ancients 2000 years ago mixed silver, tin and other metals with mercury to form a silver paste there has been a constant search for the perfect dental filling. In 1833 the Crawcour brothers arrived in North America from France and began the first "Amalgam Wars" — war because their formulation not only produced a poor filling material; it was claimed to be detrimental to patients' health.

"Actually it (Crawcour's) was a poor amalgam alloy which the dentists generally condemned because they believed that the mercury was injurious to the patient. . ."

(Bremner, *The Story of Dentistry*)

In the 1870's, Dr. J. Foster Flagg, an early dental researcher, brought the Amalgam Wars to an end with the founding of the "New Departure Movement". Dr. Flagg denounced the spurious reports of amalgam causing health injury. He proclaimed that no single filling material could serve equally well in all cases.

In 1895, G.V. Black's epic publication in *Dental Cosmos* outlined an amalgam formulation that set a standard for the next 60 years. There was no significant change to Black's formula until the early 1960's when the Canadian metallurgist, Dr. William Youdelis, developed a dispersion alloy.

As scientific detection techniques became more sophisticated so too did the condemnations of amalgam. For over 10 years the controversial research of people such as Dr. Hal Huggins of Colorado, Drs. Vimy and Lorscheider of Calgary and Dr. David Eggleston of Los Angeles have set off waves of media interest and public concern.

Within a 30-minute segment "60 Minutes" host, Morley Safer, matched ten anti-mercury spokespeople against a single individual from the American Dental Association.

No wave of concern has been greater than that emanating from the December 16, 1990, CBS Sunday prime-time television program "60 Minutes". Within a



Dr. Peter Williams (left), and Dr. Zack Kasloff (right), dental materials scientists from the University of Manitoba, discuss the mercury controversy.

30-minute segment, "60 Minutes" host, Morley Safer, matched ten anti-mercury spokespeople against a single individual from the American Dental Association. In 24 hours it seemed as if every electronic and print media in the country had something to say on the subject.

The *Journal*, in response to numerous queries from dentists and the public, interviewed two dental material specialists in order to obtain a scientific balance to the extensive media coverage.

Dr. Zack Kasloff, a dentist for 52 years and a dental materials specialist for 30 years, is still active in materials research at the University of Manitoba. A private practitioner for 20 years, he took his graduate training in dental materials science under Dr. Ralph Phillips at the University of Indiana in 1958. He served as Professor and Head of the Materials and Fixed Prosthodontic sections at the University of Manitoba from 1959 to 1972 and subsequently, at Emory University, Tufts University in Boston and the University of Colorado where he was awarded an Emeritus Professor status. He returned to the University of Manitoba in 1982. Dr. Kasloff has had extensive involvement with numerous organizations and committees investigating all aspects of the science of dental materials.

Dr. Peter Williams is Associate Professor and Head, Section of Dental Materials Science at the Faculty of Dentistry at the University of Manitoba. Dr. Williams

received a DDS degree (1964) and an MSc degree (1970) in Metallurgy and Materials Science from the University of Toronto. He received his post graduate training in dental materials at the University of Indiana in 1976. He has been a member of CDA's Committee on Dental Materials and a member of the Canadian Standard Association Committee on Dental Materials since 1975. Dr. Williams is the Dental Materials Editorial Consultant to the *Journal* of the Canadian Dental Association.

Journal: Dr. Kasloff, we will begin with you, since you have worked for over half a century in dentistry and probably have handled a carload of amalgam in your day. Do you have serious concerns about the deleterious effects of mercury?

Dr. Kasloff: Yes I have concerns, but I must make it clear that I am not concerned with the harmful effects of this element's level in amalgam restorations but rather with effects produced by improper handling of mercury during preparation of the amalgam mix by the dentists and/or assisting personnel. The management of the residue after insertion of the filling is also a concern.

In 20 years of full-time dental practice prior to my involvement with academia, I have inserted thousands of restorations and have not encountered a single incident of untoward reactions or side effects

from the material. I am aware of reported cases of allergic sensitivity reactions but they are extremely rare. In addition to my full-time practice of 20 years, I have been involved with many thousands of patients over my teaching career. Again, I have not seen a single case of allergy or toxic reaction.

Journal: Have either of you ever seen a definitive sensitivity to mercury?

Dr. Kasloff: Only one and it was a dentist. A number of years ago I conducted a survey on one hundred dentists and I recall one elderly dentist who had elevated amounts of mercury with some symptoms of toxicity. The increased mercury levels were directly related to many years of improper handling of the material.

Dr. Williams: I have never seen a single case of mercury toxicity.

Journal: In "60 Minutes" a number of statements were made about the amount of mercury in silver amalgam fillings alarming enough to concern any lay individual:

"The mercury in this patient's mouth is 90× higher than the mercury level in a newly painted room and 3× higher than the US government allows in the work place."

"Mercury is more poisonous than lead or arsenic."

"I've had 10 teeth with massive mercury fillings in them and he said at the time that if I were a building I would have been condemned."

Can you briefly review for the Journal readers how mercury is bound in the silver amalgam filling?



In every test which I am aware of only extremely low levels of mercury come off a filling. And that level is not injurious to patients.

Dr. Williams: The mercury in the dental amalgam is primarily bound with the silver to form a silver mercury compound and that compound is relatively inert. However, because the compound melts at low temperature we can always find trace amounts of mercury vapour above the dental amalgam. We must keep in mind

that in the mouth this amalgam is covered with a corrosion layer plus a layer of saliva. These wall the restoration from the oral cavity and reduce the amount of the emission to a very low level. As that layer wears off in chewing it reforms very quickly and the protection layer is restored.

Another interesting characteristic about amalgam is the fact that it is a relatively slow setting material. Although it is mostly set within a few hours, it will in fact continue to set during the entire lifetime of the amalgam. This means that there are trace amounts of mercury not chemically well bound to the amalgam itself. This contributes to the trace amounts of mercury escaping from the filling.

I cannot emphasize too strongly: in every test which I am aware of, only extremely low levels of mercury come off a filling. And that level is not injurious to patients.

Journal: In "60 Minutes" we saw Dr. Vimy of Calgary using intra-oral meters to measure mercury. We have two questions:

1. Are these measuring devices common? A number of citizens and dentists phoned the CDA asking where they can find them.
2. What do you know about them? Are they accurate?

Certainly the work done by Vimy has been questioned by many researchers. His data show the amount of mercury release in the mouth to be much higher than reality.

Dr. Williams: They certainly are not very common. If you have the money you could buy them but I would expect there are only a handful of these meters around in dental offices and a few more in universities, health clinics and industrial settings. Some of the meters are good but many are not — they are very difficult to calibrate accurately. The end result is that the early work we saw with these devices is very suspect. We don't think the readings we have seen are very accurate at all.

Certainly the work done by Vimy has been questioned by many researchers. His data show the amount of mercury release in the mouth to be much higher than reality.

Journal: Talking about Dr. Murray Vimy — he was one of your students at the Faculty of Dentistry in Manitoba during the early 1970's. Do you remember him well?

Dr. Williams: Yes, he was one of our students. And no, I don't recall him well. He didn't particularly stand out in his class.

Journal: Did he express any particular interest in the mercury within silver amalgams during his student days?

Dr. Williams: I can't recall that he was unduly excited about mercury. I believe this is something he has developed since his graduation.

The most common source of methyl mercury is from substances we eat — such as fish.

Journal: We understand the Manitoba Dental Association has advised its members to inform the public that if there is a concern about mercury levels then contact should be made with a physician. How are mercury levels assessed?

Dr. Kasloff: The mercury levels are generally assessed by analysis of blood or urine.

Journal: We hear mention of inorganic mercury, mercury vapour and methyl mercury. What is the differences between these terms?

Dr. Williams: Methyl mercury is the organic form of mercury; it is not very common and certainly it is extremely toxic — probably the most toxic form of mercury. It is formed usually by bacteria in the gut of animals. Studies I have seen show that very little methyl mercury actually forms in humans. The most common source of methyl mercury is from substances we eat — such as fish. Fish acquire mercury from the water in which they swim and then process it in the gut. When we eat fish we ingest small amounts of methyl mercury.

The other form, the inorganic form, refers to either the vapour, or the liquid form of mercury or mercury salts. Liquid mercury is not very toxic. In fact, you can swallow a small amount of the liquid and it will just pass through the gut. Very little will be absorbed and no damage will result from this liquid form. At one time the salts were found in certain medica-

tions, but the use of these has been largely discontinued.

The real danger lies in mercury vapour which can be extremely toxic. Fortunately for us there is very little mercury vapour around and as I have said before, very little is shown to come off amalgam restorations in patients' mouths.

It is estimated that somewhere around 150,000 tons of mercury evaporates every year into the air from the oceans and earth's crust.

Journal: Is there mercury vapour in this room at this very moment?

Williams: There certainly is trace amounts. The oceans and the earth's crusts are constantly emitting mercury. It is estimated that somewhere around 150,000 tons of mercury evaporates every year into the air from the oceans and earth's crust. There is another 20,000 tons of mercury arising from industrial concerns, primarily the burning of fossil fuels. So yes, we are constantly surrounded by trace amounts of mercury and have been ever since human life evolved. This makes me think that environmentally we can cope quite well with trace amounts of mercury.

Journal: On "60 Minutes", Dr. Vimy emphatically said, "There is no safe threshold for mercury exposure, none!" Would either of you care to comment on safe levels?

Dr. Williams: I would say that the statement is sheer and utter nonsense. Dr. Vimy is seriously over-reacting. As I said earlier, there has always been trace amounts of mercury in the environment and we have lived with that from day one.

I would say that the statement is sheer and utter nonsense. Dr. Vimy is seriously over-reacting.

The new proposals for safe mercury levels in the work environment — they are not yet law but proposals — are for very much reduced levels. Even if we compare the amount of mercury coming off a dental filling, either the vapour or that which is swallowed, we still find that the amount of mercury coming off dental amalgams will indeed be low in comparison to the new, very stringent proposals.

I also expect that as with most substances, no matter how small you made

the safe level, there would always be a few people who would be adversely affected. If we were to set safe levels so no one was affected we would likely find that very few substances would be absolutely safe for everyone. We must keep things in perspective. I personally believe that the risk involved with dental amalgam is so small and the demand for an effective filling material is so great that its use is totally justified.

Dr. Kasloff: I would like to add to that. I have strongly disputed Dr. Vimy's statement concerning no safe levels. I refer to two American organizations, The National Institute for Occupational Safety and Health, NIOSH; and OSHA — Occupational Safety and Health Administration. Both have put forward safe levels for mercury. OSHA states a 100 micrograms per cubic metre of mercury vapour is the threshold limit — any amount below that is safe. The NIOSH organization permits 50 micrograms per cubic metre which is a time weighted average in the breathing zone based on exposure for 8 hours per day and 40 hours per week. This is the sort of situation which would prevail in an office of a dental practice. Also, there is a normal level of urine absorption of mercury which is 15 micrograms per litre.

Dr. Jones observed that the very removal of the lady's five fillings should have made the patient worse — not better — if mercury was the cause of her ailment.



Journal: "60 Minutes" referred to mercury being involved with a number of diseases: alzheimer, colitis, arthritis, multiple sclerosis, depression, chronic fatigue, migraine and anaemia. To the best of your knowledge, is there any scientific basis to these statements? I am thinking about the lady on "60 Minutes" who had five amalgams removed one day and threw her cane at her physician the next day before she went out dancing that evening. How do we dentists deal with miraculous claims such as these?

Dr. Kasloff: I would like to quote what Dr. Derek Jones of Halifax had to say on the CBC Mid-Day television interview when asked the same question. Dr. Jones observed that the very removal of the

lady's five fillings should have made the patient worse — not better — if mercury was the cause of her ailment. If the theory is that mercury and mercury vapour comes from dental amalgams then the drilling during removal, no matter how careful the operator, would cause an increase in mercury levels.

Journal: Neither one of you then have witnessed during your years of dentistry any of these "miraculous" cures?

Dr. Williams: Certainly not. I think most cases of miraculous cure would be purely coincidental. I am not sure they have looked at these patients for a long time before they removed the amalgams. They probably didn't know what they were dealing with prior to taking the amalgams out. I suspect that if one was to look very carefully, one could find many instances where health improved dramatically when amalgam fillings were put in rather than removed. We cannot overlook the matter of coincidence. I don't think researchers who make claims of miraculous cures are considering the coincidental aspect.

Dr. Kasloff: There is another point I'd like to make regarding various individual statements. I have heard and seen nothing suggesting other people witnessed these miraculous events. They are merely the expressions of one particular individual.

If a person believes that there is going to be an improvement when something is done quite often there are improvements and they can be very dramatic.

Dr. Williams: There is also something of which the medical profession is very acutely aware — the placebo effect. If a person believes that there is going to be an improvement when something is done quite often there are improvements and they can be very dramatic. In these mercury situations, I am sure we are seeing something of the placebo effect. Patients are being told that there will be a dramatic turnaround in their health if they have fillings removed. Once the fillings are removed they do experience improvement and it has absolutely nothing to do with the removal of the amalgam.

Journal: Who would like to comment upon two questions arising out of "60 Minutes":

1. The studies of Dr. Vimy and his associates and their scientific

The studies done by Vimy on mercury released from people and their fillings have been criticized by a great number of experts in the field.

significance.

2. Other amalgam studies taking place around the world.

Dr. Williams: I will give it a try. Vimy conducted two main categories of study: one had to do with the mercury being released from dental fillings in humans, and the other were studies determining the mercury released from fillings placed in sheep. As I stated earlier, the studies done by Vimy on mercury released from people and their fillings have been criticized by a great number of experts in the field. They have gone back and looked very carefully at Vimy's work and recalculated his values. They have found the values reported in all of those studies between 10 and 16 times too high. The corrected values other researchers came up with are only about 1% of the WHO recommendation. So, based on that alone, it would seem to me that the mercury we are getting from the metal fillings accounts for an extremely small amount of the body burden.

If we are truly concerned about reducing the amount of mercury people get into their bodies, I think we have to look at areas other than dentistry. I am convinced that dentistry is not contributing very much to the overall body burden of mercury.



In all cases their results indicate Vimy's values were 10 to 16 times too high.

Journal: So other people have replicated Vimy's work?

Williams: They have looked at his studies and there have been other studies very similar to Vimy's. In all cases their results indicate Vimy's values were 10 to 16 times too high. I am not faulting Dr. Vimy; I think he has done some very interesting work but his mathematics apparently was faulty and it takes very complex mathematics to figure these things out correctly.

His sheep studies have also been seriously criticized by a number of people.

First of all, there was no initial body scan done on the sheep. We don't know what state the sheep were in before the study was done. There may have been a lot of mercury in the sheep to begin with. There was no control on the initial diet as far as I am aware. Was the sheep's diet high in mercury prior to the study? Another problem with the sheep study is that sheep are not very good models to use for amalgam breakdown. Sheep are ruminant, they chew their cud, and the wear rate of their teeth is probably 30 times the rate of human teeth. When you take all of these factors into consideration it would appear that the sheep study is flawed.

Journal: Other researchers have duplicated Dr. Vimy's experiment?

Dr. Williams: There have been many recent studies on the release of mercury from dental amalgams. Derand's work showed that the amount of mercury coming off dental fillings was extremely low — in the neighbourhood of only 1% of the value thought safe by WHO on a daily basis. A Swedish study of over 1,000 patients with varying numbers of amalgam restoration attempted to correlate the patients' symptoms with the number of fillings. The study asked about 30 questions: were patients experiencing many of the symptoms the anti-amalgamists tend to associate with dental mercury, do you experience headaches, do you feel tired, do you have nausea, sweating, intestinal problems — all the vague symptoms associated with mercury problems. When they examined their data they found there was no correlation whatsoever with the number of amalgam fillings. On the other hand, there were many situations where patients reported a better state of health when they had higher numbers of amalgams. Again, I think this proves that amalgams in patients' mouths do not seem to be related whatsoever to any of the symptoms and signs that are so commonly attributed to mercury in dental amalgams.

All studies I am aware of indicate that dentists' health is every bit as good as or better than the average population.

Again, we can look at dentists. Dentists have a slightly elevated mercury level compared to the general population so if there was a problem we would certainly expect to see it in dentists. All studies I am aware of indicate that dentists' health is every bit as good as or better than the

average population.

Finally, there are studies which show that most of the mercury found in dentists is coming from diet and not from the amalgam. When you take all these things into consideration there is not much validity in dental mercury being a source of health problems.

Journal: There has been considerable changes in the handling of mercury in the dental office from mulling amalgam by 'thumb and palm' at the turn of the century to hand-grinding with a mortar and pestle to the exacting methods of today. Any comments?

Dr. Kasloff: There are a number of ways of storing residue amalgam. A closed container is an excellent one. There are a number and variety of different chemical agents that can be used to suppress the activity of the mercury from the residue. If it is controlled then it can be adequately and properly disposed of without danger to anyone. Moreover, the improvements in the handling of mercury and amalgam which came about through the common procedure of capsule devices requires no mixing or handling of the amalgam at all by dentists and assistants. When finished the capsules themselves can be disposed of in the same container as we referred to earlier. It is a non-problem to control mercury handling — it should just be a regular procedure.

Journal: There has been some work done by people like Dr. Bill Youdelis in Windsor on the use of indium to reduce the amount of mercury needed.

Dr. Williams: Yes, there are some products on the market with indium present. They have been shown to reduce mercury release from the first day after placing the filling. After that they do not reduce mercury emissions any more than the high copper amalgams which almost all Canadian dentists are using today.

Journal: Let us turn to composites. Tremendous strides have been made since Dr. Michael Buonocore developed acid etched bonded resins in the early 1960's. Are composite materials ready to replace silver amalgam for posterior fillings? What we hear is "No!"

Dr. Williams: I agree with that most emphatically. Certainly there is a great deal of development in that area and it may only be a matter of time before they are suitable for use in posterior restorations. But that is not the case right now.

The main problem with composites is that they can wear excessively where there are areas of heavy occlusal contact. Posterior composites are very difficult to place in comparison to silver amalgam. You can't really carve them like amalgam. What all this means of course is they are time consuming to do properly and time is money and therefore the price is driven up over the cost of doing a silver amalgam. Another important characteristic of the composites is the fact that they don't have the same cariostatic effect as amalgam. If you get a carious lesion starting around a composite restoration it will progress at a much faster rate than the lesion around a silver amalgam. This makes them more risky than a silver amalgam because you can get a devastating amount of dental decay under a composite resin.

Another important characteristic of the composites is the fact that they don't have the same cariostatic effect as amalgam.

Journal: Why is there that difference between the two materials?

Dr. Williams: Dental amalgam corrodes and the metal ions being released slow down the bacterial action and slow down the decay. Of course we don't see metal ions being released from composites.

Journal: Dr. Vimy has stated that about 40% of dentists would have to be retrained if amalgams were banned and only composites were available. As teachers for many years we are sure you have some comment to make on this statement.

Dr. Williams: The statement of 40% requiring retraining is pure nonsense.

I find no validity in the 40% retraining statement whatsoever.



Dr. Kasloff: I find no validity in the 40% retraining statement whatsoever. The fact is the basic principles that are constantly being taught certainly will fit any practising dentist to undertake whatever modifications will occur in the han-

dling of various materials. Retraining would be no different than any other operative procedure carried out in the dental office. I also wonder where Dr. Vimy came up with his 40%. Why not 30% or 60%? I would certainly like to see the study on which Dr. Vimy based his comments.

Dr. Williams: All you have to do is look at what has happened in the past 20 years since the introduction of composites. For examples, the light cured techniques, glass ionomer cements, polycarboxylate cements. In every case, the dentist has been able to adapt without going back for further training. Dentists don't graduate from dental schools unless they are the type of people who can take on new information and incorporate it into their practices very quickly. I don't see why it wouldn't be any different with composites.

Journal: Apart from the physical and handling properties of composite materials, they are more expensive. One 1991 provincial fee guide lists a three surface molar amalgam at \$47.00 compared to \$85.00 for a composite. That is a 77% difference in the cost.

Dr. Kasloff: The time factor and cost of placement is not the only factor. To date we are not sure of the longevity of the resin materials. We do have the historical evidence of amalgam being a long-term service material — properly placed silver amalgam fillings have been shown to last 40 and 50 years, even longer. The only available evidence we have to date on composites is in the order of five to seven years. This translates into the fact that if you have to replace them more frequently the cost rises accordingly. Perhaps in the future we will have composites comparable to amalgam. I know Dr. Ralph Phillips has stated that probably some form of resin material will replace amalgam in the future. But it doesn't exist at this time.

Journal: What about the safety of composites. We never hear anything about that. Is there an ingredient in the resin, the filler, the acid-etch, that is potentially harmful?

Dr. Williams: I would have to say not really. There may be some danger in the acid etching agent. If you etch too much you could damage tooth enamel or if some stayed on the gingiva too long. But that is a matter of proper procedure. The resin itself is pretty inert once it has set. Again, there can be some problems with allergies (like many other substances).

Toxic effects from resin materials are negligible in my opinion.

Journal: What about pulpal irritation?

Dr. Williams: Yes, before the resin sets some of the constituents can irritate the pulp, but once it is fully set there is no irritation from the material itself. The dentist can very easily protect against the pulpal irritation by simply putting down one of the many different substances available for protective coatings on the floor of the cavity.

The National Institute of Dental Research, the United States Public Health Service, the National Multiple Sclerosis Society, and the Consumer's Association have all issued statements supporting the continued use of amalgam.

Journal: Both the CDA and ADA have issued statements regarding mercury in amalgam. As dental material scientists, do you feel comfortable with what they say?

Dr. Williams: I believe I can speak for both myself and Dr. Kasloff in saying that both statements are responsible. Not only have the CDA and ADA made statements; other organizations have done so as well: the National Institute of Dental Research; the United States Public Health Service; the National Multiple Sclerosis Society, and the Consumers Association have all issued statements supporting the continued use of amalgam.

I would also like to add that the human body constantly excretes mercury. According to some research we would need to have about 60 active occlusal amalgam surfaces present in our mouths actively producing mercury in order to overwhelm the body's natural excretion mechanism. Until that happens we wouldn't expect accumulation of mercury in the body.

We would need to have about 60 active occlusal amalgam surfaces present in our mouths actively producing mercury in order to overwhelm the body's natural excretion mechanism.

Dr. Kasloff: We have to remember too that what we are talking about are the occlusal restorations. We are not concerned about the action of the buccal and cervical amalgams. There is no chewing mechanism there.

Dr. Williams: Well, there could be toothbrush abrasion but I believe that to be of short duration and negligible.

The amounts are so small when compared to what is being taken in with our food supply and other sources that amalgams do not contribute anything significant to the overall body burden.

Dr. Kasloff: If you are looking at two bicuspids and two molars in each quadrant you have sixteen surfaces — this is a long way from the 60 surfaces you mentioned to overwhelm the natural body excretion mechanism.

Dr. Williams: When I was requested to do this interview, I went over all the literature and material I had accumulated on this topic. My conclusion is that there is really not any problem at all with mercury released from amalgam. In fact, the amounts are so small when compared to what is being taken in with our food supply and other sources that amalgams do not contribute anything significant to the overall body burden. If we want to cut down on mercury we should look at some of these other sources first and not the dental amalgam. △

Dr. Peter Williams (left), and Dr. Zack Kasloff (right), dental materials scientists from the University of Manitoba, discuss the mercury controversy.

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The University of Manitoba

Inter-Departmental Correspondence

DATE: December 18, 1990
TO: All Clinical Dental Students and Clinical Instructors
FROM: R.E. Jordan, Dean
SUBJECT: **THE SILVER AMALGAM CONTROVERSY**

There is currently no controversy within the dental profession relative to the routine use of silver amalgam as a restorative material, for undoubtedly silver amalgam is still one of the most reliable restorative systems available. Further, there is universal agreement among those professionals who are in a position to know that *there is not a shred of scientifically valid evidence* which links silver amalgam to systemic disease of any kind (exception, cases of clearly demonstrated mercury sensitivity which are extremely rare).

The current controversy is, for the most part, media generated on the basis of research which is unfortunately invalid. The enclosed position papers from both The American and Canadian Dental Associations reflect the true and scientifically accurate status of silver amalgam at the present time. Please do not hesitate to call these data to the attention of any patients who make inquiries.

cc: Associate Deans
Department Chairmen

The Journal is indebted to Ron Jordan, Dean, Faculty of Dentistry, University of Manitoba, for permission to publish his December 18, 1990 memo.



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Specialty Features

CAD/CAM in the Dental Office: Does It Work?

P.R. Crawford, BA, DMD

Increased references are appearing in dental literature about computer assisted design and computer assisted manufacturing (CAD/CAM). As with all innovations, there are those (mainly the developers of the systems) who believe CAD/CAM will eventually change restorative dentistry as we know it today. But for most clinical dentists, CAD/CAM is merely an acronym of curiosity for some mechanism of the future.

The *Journal*, without taking scientific issue, paid a visit to a dental office currently utilizing CAD/CAM to evaluate its merits in a practical clinical setting.

Of the three better known dental CAD/CAM concepts — the Duret system, Rekow system and Siemen's CEREC — only CEREC is available commercially; the other two systems are still in developmental stages.

Duret System

Twenty-five years ago, the French scientist Dr. François Duret (who has a dental degree, medical degree and two PhDs) conceived the idea that a combination of physics and the computer could revolutionize dentistry. His CAD/CAM system utilizes a laser-diode scanner to produce images of tooth preparations. The restoration is "designed" with the aid of a library of tooth forms stored in the computer memory. A three-axis milling machine completes the process. The entire procedure, from preparation to final cementation, can take place in one appointment — ideally in less than one hour.

Reports indicate the complete Duret system (scanner, CAD and CAM) is priced between \$150,000 and \$200,000. If the CAM portion was located in a commercial laboratory and connected to a dental office by modem the costs could be reduced, but the turnaround time would be increased.

The Rekow System

Dr. Dianne Rekow is a brilliant PhD research scientist with degrees in dentistry, engineering, and business administration, plus a certificate in orthodontics. She spent years working on CAD/CAM at the University of Minnesota and has recently moved to the University of



TIME: 14:10 hours — Dr. Paul Coulombe completes the MOD inlay preparation on tooth #24.

Maryland where she continues to perfect her theories.

Her CAD/CAM concept uses stereophotography to record not only the restoration requirements of the preparation but the proximal segments of adjacent and opposing teeth. The standard photographic film is exposed and the colour slides are digitized. The restoration is computer designed and milled similar to the Duret system.

One of Rekow's objectives for her optic system and design software is affordability — an investment of approximately \$5,000 for the dental practitioner. The information could then be sent to another location for machining.

CEREC

Marketed by Siemens, the CEREC system is the concept of two Swiss researchers from the University of Zurich; a dentist, Dr. Werner Mormann and an electronics engineer, Dr. Marco Brandestini.

CEREC, an acronym for ceramic-reconstruction, is currently the only commercially available CAD/CAM development. Recently the *Journal* spent an afternoon with Paul J. Coulombe, BA, DDS, a 1960 graduate of the University of Toronto. Dr. Coulombe has conducted a general practice in Brampton, Ontario for 28 years. He is one of only a handful of

private practitioners in Canada using a CAD/CAM system in general practice.

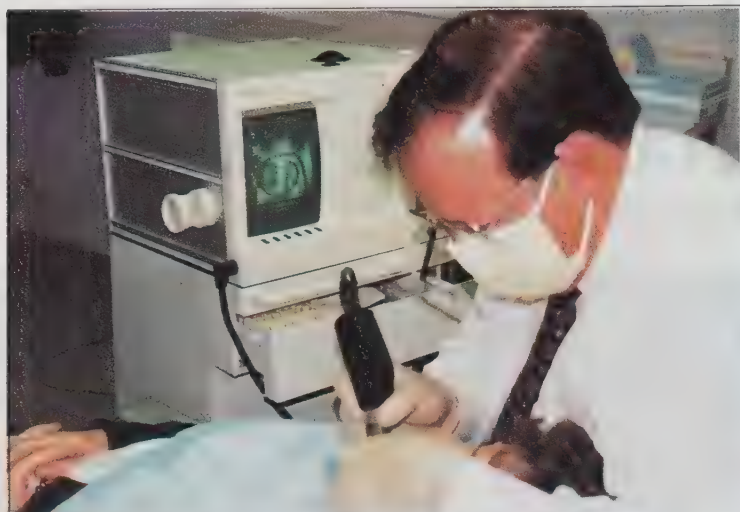
When asked how he became involved with CEREC Dr. Coulombe indicates several factors. "I try and look ahead at what is on the horizon," he says. "And I constantly seek out new endeavours which best serve my patients." "Dentistry is changing so rapidly," he continues. "A few years ago who would have thought we would be talking about CAD/CAM, lasers, AIDS, million dollar overheads and practices that are insurance driven. If we don't keep on top of everything we quickly fall behind."

CEREC Course In Zurich

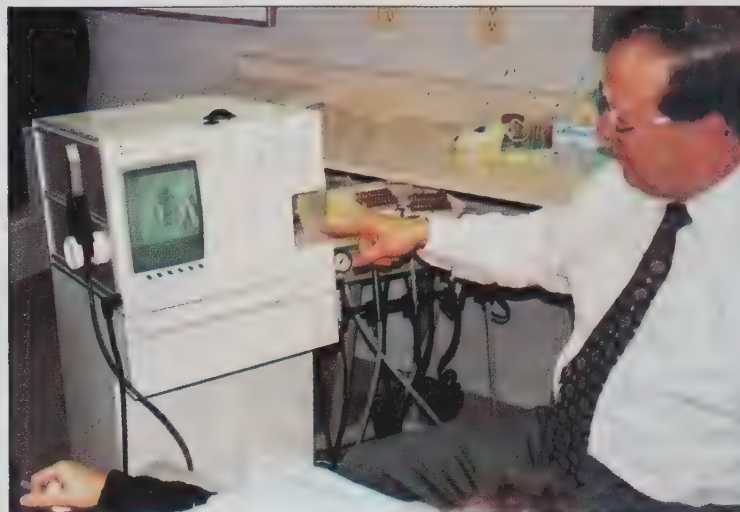
Last year Dr. Coulombe and several other Canadian dentists joined a class of 25 dentists from around the world to take the three-day CEREC course offered at the University of Zurich. Participants pay their own travel, tuition and accommodation expenses.

Dr. Coulombe remarks that the three days of instruction led by Dr. Mormann, CEREC's co-inventor, was extremely intensive. "Although they had us going 12 hours a day it was very well organized and the Siemen support was excellent."

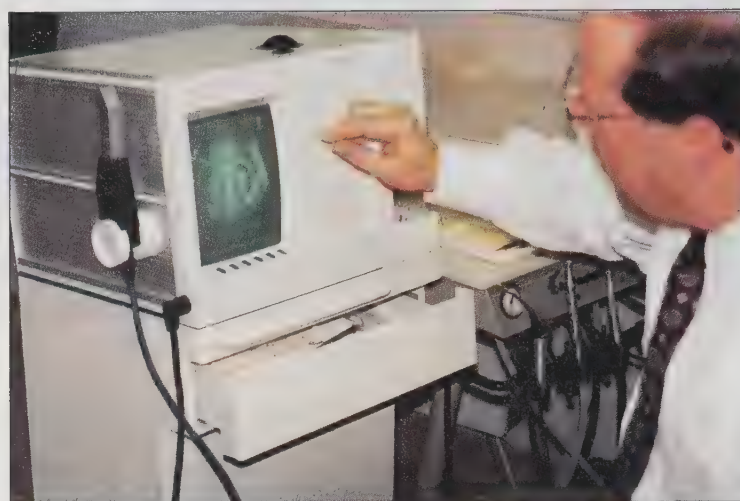
Back in Brampton Dr. Coulombe continues self instruction with CEREC. He and his two associates practice on natural



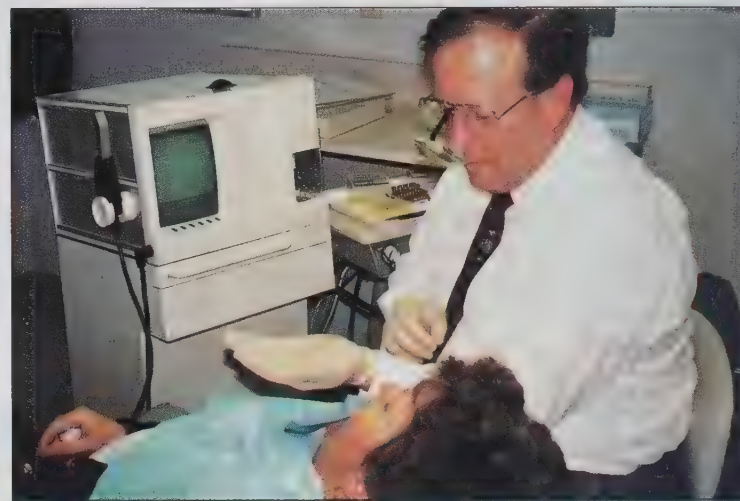
The CEREC photo-scan transmits the preparation detail to the monitor.



CEREC's milling machine cuts a precise inlay from a solid piece of porcelain.



Dr. Coulombe "designs" the inlay preparation.



TIME: 15:09 hours — the inlay is ready for try-in.

teeth embedded in plastic with the aid of a comprehensive step-by-step CEREC manual. "Like everything else," he says, "the more often you repeat a procedure the better you get at it."

The Journal Observes The Preparation

Dr. Coulombe's patient was promptly seated at 14:00 hours. The selected tooth, a maxillary left first bicuspid, requires replacement of an old MOD amalgam. Dr. Coulombe explains a number of features during the ten minutes needed to anaesthetize, place rubber dam, remove the old amalgam and prepare the tooth for a MOD porcelain inlay.

- ** the inlay preparation has to be almost perpendicular with a maximum of four to six degrees divergence.
- ** good inlay technique is still paramount — sharpness of axial walls, floors etc.
- ** the gingival seat should be above the gingival line — the computer scanner cannot tell the difference between

tooth and rubber dam if at the same level.

- ** Glass ionomer may be used if there is an undercut.

The "Impression"

Prior to the optical "impression" a contrast powder is applied to the surface of the prepared tooth. The camera system, utilizing an infra-red mechanism, is positioned over the tooth and by the flick of a foot-switch a three-dimensional preparation image instantly appears on the computer screen. The time is 14:30 hours.

The Inlay Design

The inlay is computer designed directly on the monitor screen. Dr. Coulombe uses a "trackball" to trace a series of dots onto the monitor indicating where he wants the filling to go. In other words, he "tells" the machine how to do the milling. He arbitrarily selects the marginal ridge and the contact point. The computer tells Dr. Coulombe what size of prefabricated Dicor block is required for the par-

ticular preparation. The Dicor blocks come in a variety of sizes and shades. Dr. Coulombe and his assistant carefully select a shade to match the bicuspid. The manufacturers claim that one of the advantages of the preformed material is its batch formulation. The process reduces porosity and guarantees colour consistency. The porcelain blocks are attached to a metal stub which is fixed to the three-axis milling machine.

Milling

At 14:41 hours the Dicor block is placed in the milling mechanism and the cutter blade is activated under a stream of water. There is a lull in the office activity while dentist, patient, staff and *Journal* watch the process through a small clear plastic door. The computer has indicated that the water-powered diamond cutter blade, about the shape of a good-size "Joe Dandy" disc, will create the inlay by making 258 cuts in 5 minutes and 37 seconds. And it does! Dr. Coulombe pronounces, "Our job is about 90% done."



Following bonding, the final polish. Total elapsed time: 1 hour and 15 minutes.



The final restoration passes the Journal test!

The Try-In

At 14:50 hours the inlay is separated from the milling stud and tried into the preparation. Dr. Coulombe has already warned us that he may have designed the contact point a little heavy so no one is surprised when there is some preliminary adjusting. Once a tight contact is established the inlay seats well.

Bonding

An intrinsic factor of the CEREC system is the bonding. It provides not only adhesion but marginal integrity. The bonding process is similar to most systems. The enamel borders are etched for about 30 seconds and a bonding agent is applied to the inlay and cavity surfaces. All parts of the cavity are covered with a dual cure posterior composite material at which time the inlay is seated and polymerized. Total time elapsed is now 1 hour and 7 minutes. "Now the meticulous job begins," says Dr. Coulombe.

Occlusion

The meticulous (and tedious?) occlusion process is an apparent weakness of the CEREC system. The occlusion must be ground-in by a trial and error hand grinding procedure. Occlusal contouring is achieved with the use of a contour diamond (40 micrometre). And tedious it is: the patient is instructed to repeatedly "tap-tap" on a piece of articulating paper.

As perfection approaches, a finer diamond (15 micrometre) is used and final polishing is achieved with flexible sandpaper discs. Interproximal areas are refined with metal strips.

A final inspection is made of all areas and when Dr. Coulombe is satisfied that marginal integrity, contours, shade and

occlusal excursions are clinically acceptable, the patient is prepared for dismissal. Total elapsed time — from start to finish — is 1 hour and 27 minutes.

The Future

After the patient left the office, Dr. Coulombe candidly informed the *Journal* that although he considers the CEREC restoration to be good treatment, he certainly does not view the system as perfection. "We're at the leading edge of restorative technology. I know CAD/CAM is going to be the way of the future," he said. "But it requires investigation and research beyond what I can provide with a single unit."

Dr. Coulombe expressed a familiar comment about CEREC — one the *Journal* recognizes from several other encounters with CAD/CAM: "At this point CEREC is an elegant *Model T*. It's going to be quite a few years before CAD/CAM becomes part of everyday dentistry." Dr. Diane

Rekow drew the same analogy during a recent lecture, as did Dr. Harald Heyman at North Carolina's School of Dentistry. The fact that there are only 35 or 40 CEREC units currently in use in the USA and merely a handful in Canada gives rise to the *Model T* parallelism.

Economics

Cost plays a large role in the future of CEREC and any CAD/CAM system. Dr. Coulombe paid \$70,000. for his CEREC unit. His five-year lease costs \$1,800. a month. "I'm not going to get my investment back very quickly at \$400. an inlay," he muses. "However, I do enjoy being involved with the technology of tomorrow." Δ

The Journal extends sincere thanks to Dr. Paul Coulombe, his staff and associates — and especially to an understanding patient — for the opportunity to observe this CAD/CAM procedure.

Did you know?

Megatrend's Naisbitt Outlines 6 Major Trends

During a speech last August, John Naisbitt, (who earned \$25,000 for his 90 minutes!), told his Toronto audience the 1990s would be shaped by six major movements:

- a renaissance in the arts, literature and spirituality
- a decline of the welfare state and the emergence of free-market socialism
- the emergence of English as the first truly universal language
- a decline in importance of cities and the emergence of new "electronic heartland"
- a move toward eventual worldwide free trade, and
- a global economic boom.

(Reprinted from *Enroute* November 1990)

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*Dr. Robert Simonsky
Toronto, Ont.*

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*Dr. Douglas Pauls
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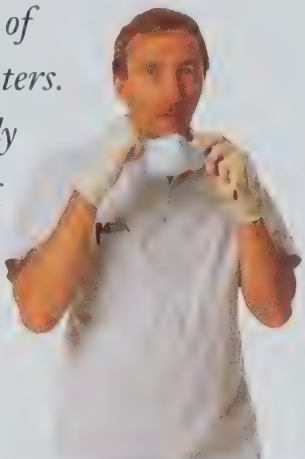
one button. It means a system that's so easy anyone can use it with minimal training. It means no more claim form, no more postage, and no more paper chase. It's that simple.

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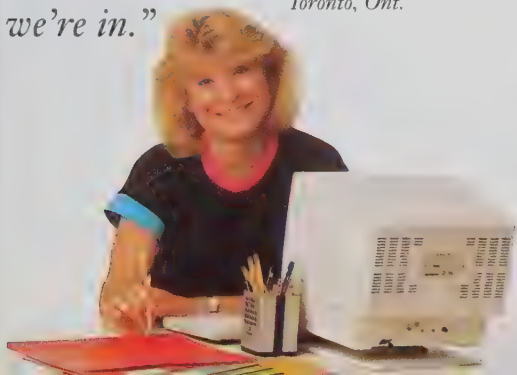
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Markers of periodontal disease susceptibility and activity — A review

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ABSTRACT

There appears to be sufficient evidence to indicate that traditional clinical parameters are unable to determine active disease sites in periodontitis and predict future periodontal breakdown. This paper attempts to review some of the recent research aimed at developing laboratory markers of disease susceptibility and activity. A wide variety of studies have involved specific plaque bacteria and their products, host cells and their products, and products of soft and hard tissue injury. Although research to date has been unsuccessful in providing the clinician with reliable diagnostic aids, the rapid progress being made towards refining sampling and analytic techniques gives cause for optimism. These markers may, in the near future, enable the dentist to target preventive measures for patients who are at a greater risk of losing their teeth to destructive periodontitis.

SOMMAIRE

Il semble y avoir assez de preuves indiquant qu'à l'aide des paramètres cliniques traditionnels, il est impossible, dans les cas de parodontite, de déterminer les sites actifs tout comme de prédire les prochaines attaques. Dans cet article, on examine certaines des recherches faites récemment afin de mettre au point des marqueurs de laboratoire qui serviraient à repérer les sites éventuels de la maladie et son degré d'activité. Diverses études ont porté sur certaines bactéries de la plaque et leurs produits, sur des cellules-hôtes et leurs produits, ainsi que sur les produits des lésions aux tissus durs et mous. Bien que les recherches n'aient pas réussi jusqu'à présent à fournir au clinicien des moyens pour poser des diagnostics sûrs, il y a place pour l'optimisme quand on songe aux rapides progrès qui se font pour améliorer les techniques de prélèvement et d'analyse. Très bientôt, des marqueurs pourraient permettre au dentiste de prescrire des mesures de prévention aux patients qui risquent le plus de perdre

des dents sous l'effet destructeur de la parodontite.

Introduction

There is increasing evidence that in most societies, only a small group of individuals are at risk of losing a large number of teeth through destructive periodontitis.¹ Recent research also suggests that the progression of periodontitis is not continuous; it is episodic in nature, with alternating periods of active tissue destruction and periods of quiescence.² Therefore, there is a need for methods to identify high-risk individuals and to detect intraoral sites which are susceptible to breakdown or which are currently experiencing an active destructive phase. Such methods could enable the clinician to manage these patients more effectively.

The following review discusses traditional clinical parameters and their usefulness, and attempts to describe some of the recent progress in the search for markers that are capable of identifying current disease activity and predicting sites of future breakdown.

Traditional Clinical Parameters

Traditional clinical parameters recorded during a periodontal examination include measurements and indices based on the signs and symptoms of periodontal diseases, and also identify factors which predispose to plaque accumulation. Bleeding on probing (BOP) is a widely-used criterion to diagnose gingival inflammation. Lang et al.,³ in a two-year retrospective study, showed that sites which continue to bleed are at greater risk of losing connective tissue attachment than those which do not. BOP is a useful indicator of gingivitis, but its value in relation to the state of the deeper tissues and to the progression of destructive periodontitis is limited. There is also evidence to indicate that presumed etiological agents such as plaque and calculus do not correlate well with disease progression.^{4,5}

Destructive periodontitis is usually assessed by measuring loss of attach-

ment. However, single probe measurements have no value in determining the presence or absence of active periodontal disease since they detect only the loss of attachment which has occurred as a result of active pathology. The only satisfactory way of testing the adequacy of these measurements is by means of a longitudinal study.⁶ Also, some of the variable factors in manual probing, such as probing force, angulation and the difficulty of obtaining a fixed landmark as a reference point,⁷ affect the accuracy of these measurements. Researchers now working with automated computerized periodontal probes hope to detect active disease sites by frequently measuring pocket depths and loss of attachment with these devices.⁸

Periapical and bitewing radiographs have been used for decades to assess the periodontal status of patients. Assessments are made of periodontal ligament space width, interproximal crestal bone height (compared to the CEJ) and irregularities, and bone densities.

Some of the shortcomings of radiographs include: difficulties in defining soft-to-hard-tissue relationships, visualizing buccal and lingual bone morphology, and detecting minor bone changes.⁹ Radiographs are useful only in identifying previous bone loss and cannot be used to assess current periodontal disease activity. Potentially more useful radiographic techniques are being developed; these include superimposition of serial radiographs, computer-assisted image analysis and scintigraphy.¹⁰

There appears to be sufficient evidence to indicate that clinical parameters are unable to distinguish true differences in infection, host susceptibility and host response.⁷ However, traditional clinical parameters continue to be important for retrospective assessment of destruction and for evaluating patient motivation and compliance. These parameters and indices can also be used in longitudinal studies which investigate suitable sensitive markers of disease activity.

Circulating Factors

Results of research which attempt to

incorporate host immune responses to periodontal pathogens and their virulence factors as potential markers for disease activity or susceptibility are difficult to evaluate, partly due to an incomplete knowledge of the specificity of periodontal infections.¹

Recent reports have linked neutrophil dysfunction affecting chemotaxis and phagocytosis with rapidly advancing periodontitis, juvenile periodontitis and prepubertal periodontitis.^{7,11} However, it is still impractical to routinely screen patients for neutrophil function as a means of identifying susceptible individuals. It has been suggested that lymphocyte blast transformation is another suitable test for antigen sensitization through exposure to a micro-organism. If the host has been exposed to a specific antigen, the transformation of the appropriate lymphoblast to an antibody-producing lymphocyte should occur more readily. In fact, increased lymphocyte blast formation was noted in patients with unspecified advanced periodontal disease when challenged with *B. melaninogenicus*, *A. viscosus* and *A. naeslundii*;¹¹ however, the same transformation was not noted when a challenge was made with whole plaque. This suggests that only lymphocyte transformation to specific micro-organisms may be useful as a diagnostic tool.

Additional circulating factors which have been investigated are blood group antigens, hormones, proteins, and other circulating cells such as monocytes, but no significant correlations between periodontal disease and any of the investigated circulating factors have been established.¹¹

Salivary Markers

Potential salivary markers include: antibodies specific to selected micro-organisms, salivary amylase and lysozyme, specific bacterial counts of suspected micro-organisms and cellular elements – neutrophils, monocytes, lymphoblasts and lymphocytes.¹²

Sandholm et al.¹³ reported that in patients with severe adult periodontitis, salivary IgG antibodies to *H. actinomyces* (*Ha*) were increased by a factor of 4.3 while salivary IgA antibodies to the same organism were decreased to 1/5 the levels of healthy controls. The primary source of IgA and IgG were thought to be from the saliva and the gingival tissue, respectively. It was concluded that salivary IgG may become a useful indicator of disease activity and that tests should be conducted on more than just antibodies to *Ha*, because of the etiological involvement of other micro-

organisms, including *B. gingivalis* and *Capnocytophaga* species.

Gingival Crevicular Fluid Markers

Collection of gingival crevicular fluid (GCF) is relatively easy, non-invasive and can be site specific. These factors make it a promising disease activity marker.¹⁴

GCF is derived from and contains elements of the serum. The fluid flow reflects an inflammatory increase in the permeability of the vessels underlying the crevicular and junctional epithelium of the periodontal pocket. Although it is widely believed that an increase in volume and flow rate of GCF is one of the earliest signs of inflammation in the region of the pocket epithelium, some reports^{15,16} have suggested that the fluid flow is the result of an osmotic gradient established by the presence of the macromolecules in plaque. Such a gradient may account for the presence of GCF in the absence of clinically or histologically evident inflammation.

Since it is accepted that GCF is derived from the serum, it is not surprising that blood-borne elements are found in the GCF. Products of microbial plaque, tissue breakdown, host cells, and host immunity will also be found.

A) Products of microbial plaque

i) *Endotoxin*: Various hypotheses of the role of these lipopolysaccharides as etiologic agents in periodontal diseases have been made, but the only positive association demonstrated has been between endotoxin levels and gingivitis.¹⁴ *In vitro* studies have shown the potent bone resorbing properties of endotoxin. Only further *in vivo* research can demonstrate if a relationship exists between endotoxin and periodontal destruction.¹⁴

ii) *Enzymes*: Many extracellular lytic enzymes, including proteinases, hyaluronidases, glycosidases and neuraminidases, are produced by oral micro-organisms. It is likely that all components of the extracellular matrix are susceptible to destruction by these enzymes. However, no studies in the literature have reported a relationship between these enzymes and gingival or periodontal breakdown. Distinguishing between host and micro-organism enzyme is a major problem and will be resolved only by further research, likely using specific immuno-reagents.¹⁴ Therefore, microbial enzyme presence in GCF does not appear to be promising as a disease marker.

iii) *End products*: Some studies have found that plaque metabolites, especially butyric and propionic acid, may be toxic to tissues of the periodontium. In separate experiments, it was found that:

1) mouse fibroblasts and human gingival fibroblasts were inhibited *in vitro* by the salts of these acids;¹⁷ and 2) both acids could produce gingival inflammation in Beagle dogs.¹⁸ The presence of these acids may indicate a shift in the microbial population and may therefore be a predictor of future disease, rather than a marker of present disease.¹⁴ Other end products which require further examination include ammonia, phenolic fatty acids and amines.

B) Products of tissue breakdown

i) *Collagens*: Collagen normally undergoes turnover in living tissues, and an equilibrium between collagen production and degradation exists in health. If increased degradation is present, as in active disease, breakdown products could be found in the GCF. The amino acid hydroxyproline, an important substrate in collagen synthesis, is used as an indicator of collagen fragment presence. Elevated hydroxyproline levels have been demonstrated in suspected periodontal disease sites, but no conclusions can be made about their relationship to disease activity.^{19,20}

ii) *Proteoglycans*: Four major proteoglycans are present, derived from different glycosaminoglycans. They are the sulfated dermatan sulfate, heparan sulfate, chondroitin-4-sulphate and nonsulfated hyaluronic acid. Proteoglycans are important nonfibrous macro-molecules of connective tissue. Since chondroitin-4-sulfate is prominent in bone, its presence in GCF may be an indicator of the active bone destruction that occurs in periodontal diseases. Further work will determine the suitability of using proteoglycans as disease activity markers.

C) Products of host cells

Among the cellular elements found in GCF are desquamated epithelial cells and migrated leukocytes.¹⁴ The predominant leukocyte is the neutrophil, and it has been shown that absolute numbers in GCF are increased with increased severity of inflammation.²¹ These host defence cells produce antimicrobial substances that can also cause host tissue destruction. Although these antimicrobial products have been studied extensively, no conclusions have been made about their use as markers of active disease.

Collagenase is an important enzyme involved in collagen turnover, and human

collagenase can be differentiated from bacterial collagenase. Studies have shown a direct correlation between collagenase levels and both gingivitis and pocket depth.^{22,23}

Some other host cell products which have been investigated include elastase, cathepsin D, lysozyme, proteoglycan degrading enzymes and lactoferrin. These products and their activity have been reviewed by Curtis et al.¹⁴

D) Products of host immunity

Considerable research has been conducted on the production of immunoglobulins, complement, the cytokines and arachidonic acid metabolites and their presence in the GCF. However, their suitability for use as markers is still unclear.

i) **Immunoglobulins:** Whether derived from gingival plasma cells or arising from the serum, immunoglobulins are important in the defence of the oral cavity and do appear in the GCF. Antibody titers of specific immunoglobulins such as IgG, rather than total concentration, are likely to be more useful as disease markers.¹⁴ Significant correlations have been made between antibody titers to: *Ha* and localized juvenile periodontitis,²⁴ *B. gingivalis* and adult periodontitis²⁵ and *B. intermedius* and ANUG.²⁶

ii) **Complement:** Complement system activation initiates a complicated series of events which results in the release of destructive lytic enzymes from neutrophils and mast cells. Measurements of levels of C3 in GCF, important in both the classical and alternate pathways, have shown increases in experimental gingivitis²⁷ and decreased levels following periodontal therapy.²⁸

iii) **Cytokines:** Work is continuing to determine if there is any relationship between periodontal disease and GCF levels of the cytokines, which mediate T-cell and B-cell function.

iv) **Arachidonic acid metabolites:** Arachidonic acid metabolites are potent mediators of inflammation and may play a significant role in the pathogenesis of periodontal disease.^{14,29} Analysis of these various substances found in GCF shows promise in the search for a rapid and sensitive means of identifying active periodontal destruction.

Subgingival Plaque Markers

A distinction must be made between supragingival and subgingival plaque since the two sites harbour distinct bacterial populations that differ qualitatively and quantitatively.¹¹

Because of the demonstrated cause-and-effect relationships between bacterial plaque and periodontal diseases, much research has been conducted in the past decade to allow the classification and diagnosis of specific periodontal diseases and identification of periods of active destructive episodes on the basis of the quantitative and qualitative nature of subgingival plaque.

A survey of the recent literature suggests associations between the presence of possible periodontal pathogens such as *Ha* and *B. gingivalis* and the risk of continuing destruction. However, more investigation is necessary to establish the predictive value of descriptive microbiology before the clinical analysis of plaque becomes a routine procedure.

In summary, rapid progress aimed at developing clinical and laboratory markers of periodontal disease susceptibility and activity, will hopefully result in the development of reliable, and cost-efficient tests which will facilitate the identification of active disease sites and enable the dentist to target preventive measures for individuals who are at a greater risk of losing their teeth to periodontitis. Δ

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In genital herpes, appropriate examinations should be performed to rule out other sexually transmitted diseases.

These indications are based on the results of a number of double-blind, placebo-controlled studies which examined changes in virus excretion, healing of lesions and relief of pain. Because of the wide biological variations inherent in herpes simplex infections, the following summary is presented merely to illustrate the spectrum of responses observed to date. As in the treatment of any infectious disease, the best response may be expected when therapy is begun at the earliest possible moment.

In immunocompromised patients, 93% were virus negative after 5 days of topical ZOVIRAX therapy, whereas only 35% of placebo recipients were virus negative at the same time.

In patients with herpes labialis, there was a significantly greater decrease in the amount of virus excreted after one day of therapy in those receiving ZOVIRAX within 8 hours of the onset of cold sores when compared to identically treated placebo patients.

Because complete re-epithelialization of herpes-disrupted integument necessitates recruitment of several complex repair mechanisms, the physician should be aware that the disappearance of visible lesions is somewhat variable and will occur later than the cessation of virus shedding. All immunocompromised patients who received topical ZOVIRAX had healed their lesions 23 days after the initiation of a 10-day course of therapy. 75% of placebo patients had healed lesions at that point. Some placebo patients continued to have visible lesions for more than 30 days.

Pain associated with herpes infections is highly variable in frequency and intensity. One hundred percent of the ZOVIRAX-treated immunocompromised patients were pain-free by day 23 versus 70% of placebo-treated patients.

Whereas cutaneous lesions associated with herpes simplex infections are often pathognomonic, Tzanck smears prepared from lesion exudate or scrapings may assist in the diagnosis. Positive cultures for herpes simplex virus offer the only absolute means for confirmation of the diagnosis.

CONTRAINDICATIONS: ZOVIRAX Ointment 5% is contraindicated for patients who develop hypersensitivity or chemical intolerance to any of the components of the formulation, such as polyethylene-glycol.

WARNINGS: ZOVIRAX Ointment 5% is intended for topical use only and should not be used in the eye or on mucous membranes.

PRECAUTIONS: The recommended dosage, frequency of application and duration of treatment of ZOVIRAX Ointment 5% should not be exceeded.

It is not known whether acyclovir is excreted in human milk.

Because many drugs are excreted in human milk, caution should be exercised when ZOVIRAX is administered to a nursing mother.

ZOVIRAX Ointment 5% should be used during pregnancy only if the physician feels the benefit will outweigh the possible harm to the fetus.

Safety of use of ZOVIRAX Ointment 5% in children has not been established.

There exist no data, at this time, which demonstrate that the use of ZOVIRAX Ointment 5% will prevent transmission of infection to other persons.

Since most cutaneous herpes simplex virus infections result from reactivation of latent virus, it is unlikely that ZOVIRAX Ointment 5% will prevent recurrence of infections when applied in the absence of signs and symptoms. ZOVIRAX Ointment 5% should not be applied in an attempt to prevent recurrences: application should commence only at the earliest prodromal sign of disease onset.

Although clinically significant viral resistance associated with the use of ZOVIRAX Ointment 5% has not been observed, this possibility exists.

ADVERSE REACTIONS: Because ulcerated genital lesions are characteristically tender and sensitive to any contact or manipulation, patients may experience discomfort upon application of ointment. In the controlled clinical trials, mild pain (including transient burning and stinging) was reported by 103 (28.3%) of 364 patients treated with ZOVIRAX Ointment 5% and by 115 (31.1%) of 370 patients treated with placebo; treatment was discontinued in 2 of these patients. Other local reactions among acyclovir-treated patients included pruritus in 15 (4.1%), rash in 1 (0.3%) and vulvitis in 1 (0.3%). Among the placebo-treated patients, pruritus was reported by 17 (4.6%) and rash by 1 (0.3%).

In all studies, there was no significant difference between the drug and placebo group in the rate or type of reported adverse reactions.

SYMPTOMS AND TREATMENT OF OVERDOSAGE: Overdosage by topical application of ZOVIRAX Ointment 5% is unlikely because of limited transcutaneous absorption.

DOSAGE AND ADMINISTRATION: Apply ZOVIRAX Ointment 5% liberally to the affected area 4 to 6 times daily for up to 10 days. A sufficient quantity of ointment should be applied to adequately cover all lesions. A finger cot or rubber glove should be used while applying ZOVIRAX in order to prevent

- (1) autoinoculation of other body sites or
- (2) transmission of infection to other persons.

Therapy should be initiated as early as possible following onset of signs and symptoms.

AVAILABILITY: ZOVIRAX Ointment 5% is available in tubes of 4 g and 15 g. Each gram contains 50 mg acyclovir in a polyethylene-glycol base. ZOVIRAX Ointment 5% is for topical administration.

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Reference:

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Determining the radiation exposure from visual display terminals used in dentistry

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ABSTRACT

Computers are rapidly becoming incorporated into all aspects of dentistry, including administrative, didactic and research functions. Of particular concern for dentists are women of childbearing age who are regularly employed as receptionists and secretaries in private dental practices and teaching institutions. Thermoluminescent dosimeter pellets of lithium fluoride were attached directly to the surface of 10 VDT's of varying age and from different manufacturers. The purpose was to compare the amounts of radiation emitted from personal computers that are commonly used in dental practices and teaching institutions. All of the machines tested met USNRC regulations for safety by emitting only negligible amounts of radiation.

SOMMAIRE

L'usage de l'ordinateur en dentisterie se répand de plus en plus, que ce soit pour l'administration, l'enseignement ou la recherche. Les dentistes doivent surtout surveiller les femmes en âge de pouvoir enfanter qui sont souvent embauchées comme réceptionnistes ou comme secrétaires dans des cabinets dentaires ou des institutions d'enseignement. Au cours d'une étude, on a fixé des granules de fluorure de lithium directement à la surface de dix écrans d'ordinateurs de différents âges et de différents fabricants afin d'en mesurer la thermoluminescence. On voulait ainsi comparer les quantités de radiations émises par les ordinateurs personnels qui sont utilisés dans les cabinets dentaires et les institutions d'enseignement. Tous les appareils testés étaient conformes aux règlements de l'USNRC et n'émettaient des radiations qu'en quantité négligeable.

According to the Center for Office Technology, approximately 14 million workers were using video display terminals (VDT's) in the United States and Canada in 1987. The Center projects that close to 100 million VDT's will be in use by workers and the general public by the year 2000.¹ Computers are

rapidly becoming incorporated into all aspects of dentistry, including administrative, didactic and research functions. However, there is still a great deal of concern and controversy about the adverse health effects of prolonged exposure to VDT's, with radiation purported to be the most serious hazard.² Of particular concern for dentists are women of childbearing age who are regularly employed as receptionists and secretaries in private dental practices and teaching institutions.

Numerous studies applying different techniques and utilizing equipment that is insensitive to low levels of radiation such as large scintillation detectors, have reported no detectable radiation from VDT's.² Thermoluminescent dosimeter pellets (TLD's) are commonly utilized in dental radiation badges for measuring operator x-radiation exposure. The pellets trap radiation energy which is released in the form of visible light when the pellet is heated. The response of the pellets is proportional to the x-ray dose over a wide range of amounts of radiation.³ The purpose of this study was to compare the amounts of radiation emitted from several different types of personal computers of varying age commonly used in dentistry and which utilize highly sensitive TLD's.

Method

Ten thermoluminescent dosimeter pellets (2 mm × 2 mm) of lithium fluoride (LiF) were attached directly to the sur-

faces of 10 personal computer VDT's from different manufacturers and of varying age (Table I). All of the TLD's were located in the upper right corner of each of the monitors. The computers were intentionally left on for 40 hours per week over a two-month period. A control TLD pellet was isolated in the same room (but away from all of the computers) to record the natural background radiation dosage. After two months, all of the TLD pellets were removed and sent to the Landauer Corporation (Glenwood, IL) for reading of the absorbed dosages of radiation.

Results

The results comparing the amounts of radiation emitted from each VDT are shown in Table I. TLD's have a minimum reporting value of 10 mrem for 'x' and 'gamma' rays.⁴ The Landauer Corporation designates the letter 'M' to indicate that the dose equivalents for the monitoring period fell below the minimum measurable quantity. All of the monochrome monitor dosages, regardless of age, fell below the minimum measurable quantity. Only the three colour VDTs elicited any measurable radiation readings ranging from .30 to .40 mSv.

Discussion

VDT's are thought to emit ultraviolet, infrared, microwave and extremely low frequencies of electromagnetic radiation and x-radiation.¹ Consequently, with the

TABLE I

Results comparing amounts of radiation emitted from each VDT

VDT	Type	Exposure (mSv)	VDT Age (yrs)
IBM model 5151001	(monochrome)	M*	3
Zenith RGB ZMM-149A	(monochrome)	M	1
AT&T model CRT 313/M	(monochrome)	M	4
Apple Mac 512	(monochrome)	M	3
Apple Mac SE	(monochrome)	M	2
Apple Mac SE	(monochrome)	M	2
Apple Color 100 RGB	(color)	.30	3
Amdek Color-I	(color)	.40	5
NEC Multisync II	(color)	.30	2

*M = Exposure dose falls below minimum measurable quantity (.10 mSv).

widespread utilization of computers by practitioners, staff and dental students, it is imperative that the exposure rate to operators be measured to establish potential health hazards.

Previous studies, such as those performed by Guy⁵ and the Bureau of Radiological Health,⁶ indicate that VDT's emit only negligible amounts of x-radiation. The results of this study corroborate these findings, even when measured at the surface of the computer screens. Of interest is the observation that the dosages of all the monochrome screens, regardless of age, were found to be below the minimum level necessary for the TLDs to measure. Yet, all three of the colour VDT's recorded measurable amounts of x-radiation at the screen. However, these levels (.30 - .40 mSv) are still far below the *United States Nuclear Regulatory Commission* (USNRC) regulations levels that individuals are permitted to receive (i.e., 12.5 mSv per quarter year).³ Colour monitors produce slightly higher levels of radiation because these types of monitors

operate at higher voltages (approximately 25 kV for colour monitors versus 12 kV for monochrome monitors).⁴ However, since the readings were obtained directly at the surface of the computer monitor, the application of the inverse-square law for radiation exposure would mean that the operator would receive an immeasurable exposure, if he/she were sitting at an average distance of 50 to 65 cm from the screen.³

Conclusion

All of the machines tested were found to meet USNRC regulations for safety by emitting only negligible amounts of radiation. Age of the VDT did not influence the dosage of radiation produced.

In conclusion, it appears that there is currently no need for operators of approved VDT's to wear protective clothing (i.e., lead aprons) because the x-radiation doses emitted are far below the normal background levels of radiation, even when measured at the surface of the VDT. Δ

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Melanotic Neuroectodermal Tumour of Infancy A case report

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ABSTRACT

Melanotic neuroectodermal tumour of infancy is a rare neoplasm of neural crest origin, predominantly affecting the anterior maxilla of infants. Treatment generally consists of surgical excision. Long-term follow-up is important since recurrence and malignant transformation have been reported. The literature about melanotic neuroectodermal tumour of infancy is reviewed and a case occurring in a 4-month old infant is presented.

SOMMAIRE

Chez les bébés, la tumeur mélanoneuroectodermique est un néoplasme rare dont l'origine tient à la crête neurale et qui touche surtout le maxillaire antérieur. On la traite généralement par excision chirurgicale. Il est important de suivre le sujet pendant longtemps, étant donné qu'on relève des récurrences et des transformations malignes. On révisé ici les publications sur cette tumeur et on présente le cas d'un jeune enfant de quatre ans.

Introduction

Melanotic neuroectodermal tumour of infancy (MNTI) is a rare neoplasm that occurs predominantly in infants less than 1 year of age. The most frequent site of occurrence is the anterior region of the maxilla¹⁻³ or the mandible,⁴ although extraoral sites of origin such as the temporal bone,^{5,6} brain,⁶ epididymis^{5,7} and femur⁵ have been reported. The neoplasm is benign⁴ in most cases. However, recurrence of the lesion^{2,3,8} and overt malignant behaviour^{5,9,10} have been reported. In fact, Cutler et al.¹⁰ performed an extensive literature review and concluded that MNTI exhibits a relatively high rate of recurrence and malignancy.

The histogenesis was controversial for many years and led to numerous names: retinal anlage tumour, melanotic progona, melanotic ameloblastoma, pigmented congenital epulis. Currently, the favoured name is melanotic neuroecto-

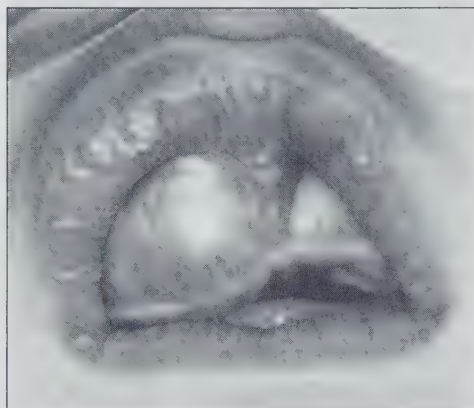


Fig. 1. Pigmented, well-delineated lesion in the right premaxilla.

dermal tumour of infancy.¹⁻³ This paper presents a case of MNTI and emphasizes some of the clinical and histopathological features.

Case report

A 4-month-old white male was referred to the Department of Dentistry at The Hospital for Sick Children, Toronto, for treatment of an expansile lesion of the right anterior maxilla. The lesion was noted two weeks prior to the referral and had steadily increased in size. The patient's medical history was non-contributory.

Examination revealed a 2 × 2 × 2 cm bluish mass in the right maxillary incisor region (Fig. 1). The overlying mucosa appeared thin but was within normal limits. There was no evidence of lymphadenopathy. Periapical films revealed a corticated circular, radiolucent lesion with evidence of displacement of the nasal fossa and the primary right maxillary central incisor (Fig. 2). Computed tomography revealed an expansile mass with evidence of cortical breakthrough in the right incisor region. There was no evidence of intracranial involvement.

The child was referred for surgery under general anaesthesia. The lesion, primary central incisor and permanent tooth bud were excised *in toto*. The surgical site was thoroughly curetted. The defect was loosely packed with Surgicel and a Chromic 3-0 suture was utilized to partially cover the defect. This left the medial

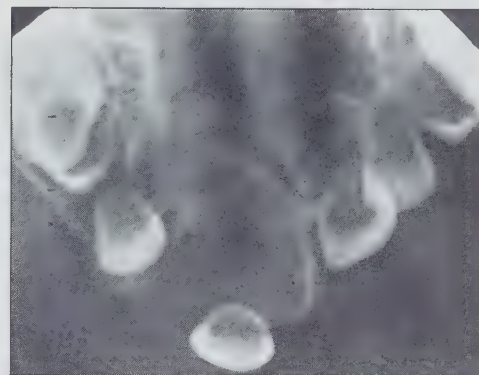


Fig. 2. Periapical view of the premaxilla revealed a corticated, radiolucent lesion with a displaced primary right maxillary central incisor (lesion outlined with arrows).

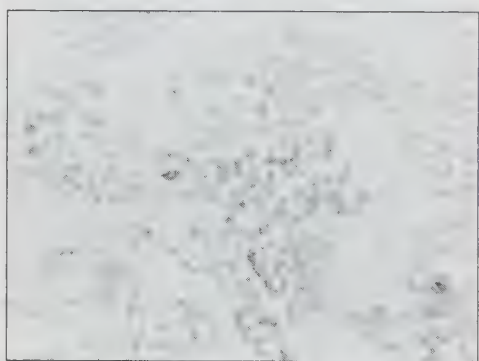


Fig. 3. Histological appearance of the tumour revealed nests of two cell types separated by fibrovascular stroma. Hematoxylin and Eosin x 640. (Courtesy of Dr. K. Mancer, Department of Pathology, The Hospital for Sick Children, Toronto, Ont.)

and lateral aspects open for drainage.

One year following initial diagnosis, the child remains healthy with no evidence of recurrence.

Pathology

The gross surgical specimen had a firm homogeneous consistency and a colour that ranged from very dark grey to pale grey. Histopathologically (Fig. 3), a fibrovascular stroma separated numerous irregular nests of two cell types; small cells exhibiting a hyperchromatic nucleus and scanty cytoplasm with ill-defined borders, and larger cells in separate nests or in association with the small cells, exhibiting clear droplets and melanin granules within the cytoplasm. The histo-

logic appearance was consistent with MNTI.

Discussion

This case exhibits some of the classical features of MNTI with respect to clinical presentation, behaviour and radiographic appearance. In general, MNTI presents in infancy and predominantly affects the anterior maxilla. The reason for this site predilection is unknown.³ The lesion appears near the midline and enlarges rapidly over several weeks. Melanin pigmentation imparts a blue or black colour. Displacement of the lip may be evident but invasion of the overlying mucosa rarely occurs. Radiographic features include a corticated radiolucency with displacement of the surrounding bone and tooth buds. The histologic appearance is pathognomonic. Melanin granules help to distinguish it from neuroblastoma, lymphoma and rhabdomyosarcoma.

Several theories have been proposed as to the histogenesis of MNTI. The most widely accepted theory at this time is that the neoplasm originates from neural crest cells — the precursors of melanoblasts.^{1,2,10} This theory is supported by the fact that the lesion secretes large amounts of vanillylmandelic acid (VMA). This property is characteristic of other tumours of neural crest origin such as pheochromocytoma, neuroblastoma and ganglioneuroblastoma.^{1,4} This patient did not have elevated levels of urinary VMA.

MNTI is widely accepted as a benign neoplasm and the management has usually been conservative and involved local excision and curettage. However, a recurrence rate of 15% has been reported.¹¹ The reasons for recurrence have been attributed to incomplete removal of the primary lesion, dissemination of neoplastic cells during surgery and a multicentricity.^{4,8} Occurrence usually transpires rapidly (i.e. within a month following the initial surgery) with the lesion spreading into tissues along the lines of least resistance. Such local aggressiveness has prompted some authors to recommend wide surgical excision of the primary neoplasm, including a margin of normal tissue.⁸

Malignant behaviour has been reported in 5 out of 158 cases of MNTI reviewed by Cutler et al.,¹⁰ although in some of these cases the histologic appearance of the lesion was more characteristic of neuroblastoma than of MNTI.⁹ It is still unclear whether these malignancies represented malignant transformation of benign lesions or arose *de novo*.⁹ It has also been suggested that the rate of malignancy for intraoral pigmented

lesions is significantly higher than for similar lesions of the skin.¹⁰ Conservative treatment is still preferred in most cases of MNTI; however, potential malignancy must be considered in cases of rapidly growing, recurrent MNTI.¹¹

A typical case of MNTI has been presented in this paper. Conservative management appears to have been successful; the patient is tumour-free one year following initial diagnosis. However, long-term follow-up is necessary. Δ

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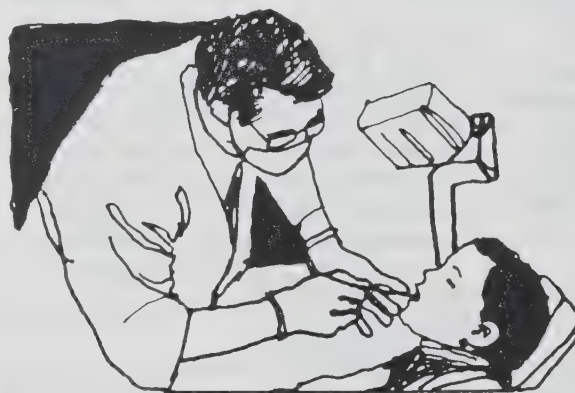
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Syndrome de Sjögren et diagnostic différentiel des parotidomégalias

Dany Morais, DMD, FRCD(C)
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SOMMAIRE

Certaines pathologies systémiques d'origine auto-immune peuvent se manifester d'abord par une symptomatologie buccale très caractéristique qu'il convient de connaître pour en faire un diagnostic précoce. C'est le cas notamment du syndrome de Sjögren primitif (Sicca syndrome).

À partir d'une histoire de cas bien documentée, cet article se veut une revue de l'étiopathogénie, de la symptomatologie et de l'investigation du syndrome de Sjögren. On y discute de plus du diagnostic différentiel des parotidomégalias en se basant sur une approche systématique.

ABSTRACT

Some auto-immune systemic pathologies can first be detected through a very characteristic symptomatology which must be known for an early diagnosis. This is particularly the case with primary Sjögren syndrome (sicca syndrome).

Based on a well documented case, this article is a review of the etiopathogenesis, symptomatology and investigation of the Sjögren syndrome. The differential diagnosis of the megaloparotids is also discussed, based on a systematic approach.

Histoire de cas

Il s'agit d'une patiente de 61 ans qui est référée pour l'évaluation d'une parotidomégalie bilatérale chronique (Figure 1).

Cette dernière nous informe avoir consulté à plusieurs reprises au cours de la dernière année pour un problème de gonflement parotidien bilatéral particulièrement démontrable à droite et qui aurait partiellement répondu à des dilatations canalaire répétées, laissant donc soupçonner la possibilité d'un phénomène obstructif. Un questionnaire plus approfondi nous permet cependant de mettre en évidence une histoire de xérostomie importante et de xérophtalmie modérée, sans évidence toutefois de symptômes suggérant la présence d'une collagénose

tels : arthralgie, arthrite, photosensibilité, alopecie et syndrome de Raynaud.

L'histoire médicale nous permet par ailleurs de retenir la notion d'une hypertension artérielle traitée par un diurétique de type Aldactazide® depuis plusieurs années ainsi qu'un épisode de rhumatisme articulaire aigu en bas âge. Une greffe d'hydroxylapatite à la mandibule et une hystérectomie abdominale totale complètent l'anamnèse chirurgicale.

On peut apprécier à l'examen clinique un gonflement parotidien bilatéral souple, asymptomatique, sans masse ou atteinte du nerf facial. Les conjonctives, les glandes lacrymales et les glandes sous-mandibulaires ne présentent aucune altération. La palpation des articulations périphériques ne démontre aucun gonflement ou déformation suggestifs d'arthrite rhumatoïde. L'auscultation cardiaque ne révèle aucun signe de cardiopathie rhumatisale. À l'examen oral, on peut constater la présence d'une légère xérostomie associée à un flot salivaire parotidien clair teinté de petits dépôts blanchâtres occasionnels.

Afin de confirmer le diagnostic, cer-



Fig. 1 : Hyperthrophie bilatérale des parotides.

taines épreuves sanguines sont demandées et révèlent la présence d'une vitesse de sédimentation élevée, d'une hypergammaglobulinémie polyclonale, d'un facteur rhumatoïde positif et d'anticorps anti-SSA (Tableau 1).

Une scintigraphie salivaire démontre une faible captation parotidienne combinée à une augmentation de volume des glandes et à une rétention du Technétium après ingestion de jus de citron (Figure 2). L'image obtenue lors de la sialographie est comparable de chaque côté. Le canal

TABEAU 1

Épreuves	Patient	Valeurs normales
Globules blancs	6.8×10^9	$4.0-10.2 \times 10^9$
Hémoglobine	12.8 g/l	12.0-15.0 g/l
Plaquettes	420×10^9	$150-450 \times 10^9$
Vitesse de sédimentation	80 mm/h	0-20 mm/h
Créatinine	83 μ mol/l	70-110 μ mol/l
Glucose	5.5 mmol/l	3.9-6.4 mmol/l
Facteur rhumatoïde	287 UI/ml	< 40 UI/mmol
Anticorps antinucléaire	négatif	< 20
Anticorps Anti-SSA	positif	négatif
Anticorps Anti-SSB	négatif	négatif
B ₂ microglobuline	3.25 mg/l	0.9-2.2 mg/l
Electrophorèse des protéines plasmatiques	Hypergamma-globulinémie polyclonale	
Dosage IgG	37.4 g/l	8.0-17.0 g/l
IgA	1.94 g/l	0.9-4.5 g/l
IgM	6.89 g/l	0.7-2.8 g/l

de Sténon et ses branches de divisions intraglandulaires sont irrégulièrement dilatées. La glande est le site de multiples petites cavités qui se remplissent de produit de contraste lui donnant un aspect en « grappe de raisins » caractéristique d'une sialangiectasie secondaire à une maladie auto-immune (Figures 3, 4).

Une biopsie des glandes salivaires mineures de la lèvre inférieure permet l'examen histo-pathologique de six îlots salivaires qui sont tous intéressés par un infiltrat inflammatoire lymphoplasmocytaire à disposition péri-canaulaire. Cet infiltrat dissocie par endroit le parenchyme et s'accompagne d'une atrophie acinaire sans évidence de formation d'îlot myoépithélial (Figures 5, 6).

La symptomatologie importante décrite par la patiente, les altérations des tests de laboratoire et les images obtenues à la scintigraphie, la sialographie et la biopsie suggèrent sans équivoque un diagnostic de syndrome de Sjögren primaire (Sicca syndrome). Un traitement de support à partir d'un sialogogue de type Sialor est instauré et la patiente sera périodiquement en contrôle.

I Syndrome de Sjögren

Classiquement, la littérature attribue au syndrome de Sjögren une triade typique, soit xérostomie, xérophtalmie et arthrite de type rhumatoïde, reflet de l'atteinte systémique auto-immune¹⁻⁶. D'autres maladies du collagène peuvent remplacer l'arthrite rhumatoïde dans le syndrome; il s'agit du lupus érythémateux, de la sclérodermie, de la périartérite noueuse et de la dermatomyosite². Cette forme de Sjögren est désignée de secondaire.

Les expressions « *sicca syndrome* » ou « *syndrome de Sjögren primaire* » s'appliquent aux patients qui relatent une symptomatologie importante de xérophtalmie et de xérostomie en l'absence de collagénose systémique^{2,3,6,7} (Figure 7).

Quoique la forme primaire du syndrome s'observe beaucoup plus fréquemment, une attention particulière doit être apportée aux deux conditions cliniques dont l'évolution peut être marquée par une transformation maligne lymphoproliférative^{2,6,7,8,9}.

Manifestations cliniques

Le développement des signes et symptômes cliniques associés au syndrome de Sjögren semble privilégier principalement l'adulte de sexe féminin, âge de 40 à 60 ans et ce, dans un rapport de 10:1⁶. Un gonflement parotidien bilatéral, progressif et non douloureux, associé à la présence d'une diminution subjective de

la quantité de salive doit en suggérer le diagnostic. Les glandes sous-mandibulaires peuvent aussi subir des changements morphologiques appréciables. D'autres signes et symptômes oraux peuvent aussi être reliés à l'apparition d'une xérostomie : brûlements des muqueuses, fréquence accrue de caries, candidose orale atrophique ou pseudomembraneuse^{2,3,4,6}.

Une sialadénite chronique récidivante telle qu'observée chez notre patiente constitue une présentation beaucoup plus atypique du syndrome.

L'atteinte lacrymale doit être recherchée et suggérée par la survenue de conjonctivite récidivante, de xérophtalmie et de gonflement glandulaire. Un test de Schirmer effectué en ophtalmologie permet de confirmer objectivement la réduction du flot lacrymal^{1,4,6}. Un examen attentif de la cornée avec une lampe à fente, après coloration à la fluorescéine peut mettre en évidence la présence d'érosions parfois très symptomatiques.

La forme secondaire du syndrome de Sjögren se distingue principalement de la forme primaire (Sicca Syndrome) par son association à une maladie du collagène. Certaines manifestations cliniques sont fortement suggestives d'une collagénose et doivent être évaluées au questionnaire. Le syndrome de Raynaud, l'alopécie, la photosensibilité, l'arthralgie et l'arthrite représentent les conditions les plus fréquentes⁵.

Étiopathogénie

L'étiologie du syndrome demeure encore incertaine mais pourrait être attribuable à une hyperactivité des lympho-



Fig. 2 : Scintigraphie salivaire positive.

cytes B et à la production secondaire de plasmocytes et d'immunoglobulines (anticorps) dirigées vers les tissus de l'hôte (auto-anticorps)^{2,4,6,7}. L'infiltra-

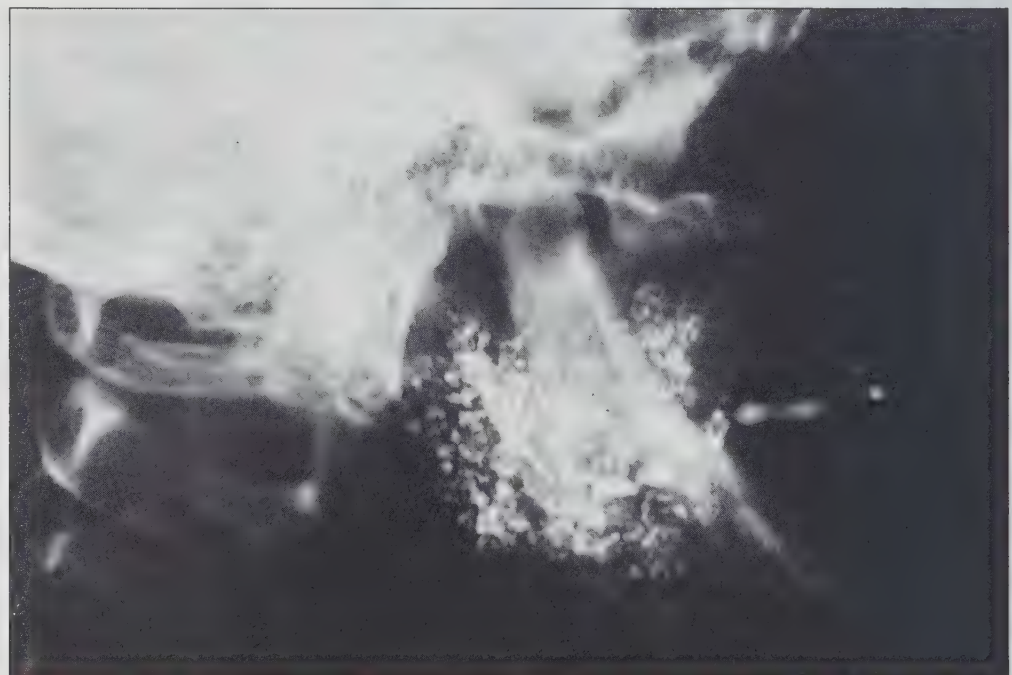


Fig. 3 : Vue latérale : aspect en grappe de raisin caractéristique.



Fig. 4 : Vue postéro-antérieure : aspect en grappe de raisin.

tion du parenchyme glandulaire, reflet de l'activité lymphocytaire, conduit inévitablement vers des changements morphologiques appréciables cliniquement et histologiquement. L'envahissement lympho-plasmocytaire des acinis, la métaplasie des canaux et la formation d'îlots myoépithéliaux permettent d'expliquer la perte de fonction des glandes et la symptomatologie associée^{3,7}.

Cette altération structurale secondaire à un processus auto-immun n'est pas spécifique au syndrome de Sjögren. La littérature rapporte l'existence de certaines autres conditions caractérisées par un tableau clinique et histologique similaire, d'où la naissance de multiples confusions^{2,6,7}. La lésion lympho-épithéliale bénigne, aussi connue sous le nom de maladie de Mikulicz, provoque un gonflement bilatéral des glandes parotides et/ou sous-mandibulaires, avec ou sans xérostomie, associée à une atteinte lacrymale facultative, avec ou sans xérophtalmie^{2,3,4}. Le bilan d'investigation démontre les mêmes anomalies que le syndrome de Sjögren. Cependant, elle se distingue de la forme secondaire par l'absence de collagénose et l'atténuation importante des symptômes permet d'éliminer le Sicca Syndrome.

Notons que le terme *syndrome de Mikulicz* fut progressivement abandonné en raison de son manque de spécificité. Il regroupait diverses conditions qui pouvaient être responsables d'une infiltration diffuse des glandes salivaires. Mentionnons la sarcoidose, les lymphomes, la

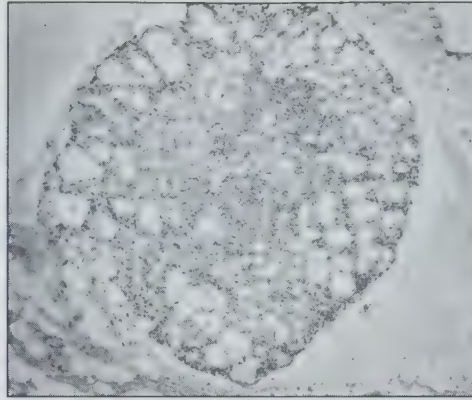


Fig. 5 : Infiltrat lympho plasmocytaire, faible grossissement.

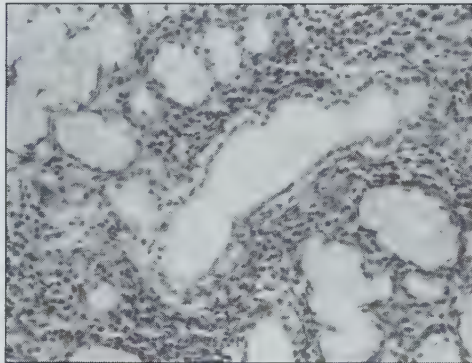


Fig. 6 : Infiltrat lympho plasmocytaire, fort grossissement.

tuberculose, la leucémie et les infections par mycobactéries atypiques^{2,3,4}.

Investigations

Le diagnostic d'un syndrome de Sjögren (primaire ou secondaire) suspecté cliniquement peut être aisément confirmé par un bilan de laboratoire pertinent qui met en valeur le caractère auto-immun de la condition.

Épreuves sanguines

L'inflammation chronique engendrée par le syndrome favorise occasionnellement le développement d'une anémie normochrome normocytaire, d'une leucopénie et d'une éosinophilie à l'examen de la formule sanguine complète⁵. L'élévation de la vitesse de sédimentation s'observe cependant beaucoup plus fréquemment.

L'électrophorèse des protéines plasmatiques permet de mettre en évidence la production excessive d'immunoglobulines circulantes. Le dosage systématique de chacune des fractions démontre dans la plupart des cas une nette augmentation des IgG et parfois des IgM et IgA^{2,3,6}. Par ailleurs, le niveau sérique de B₂-microglobuline peut s'avérer utile au cours du suivi des patients puisqu'il reflète directement l'activité de la maladie⁴.

La présence des anti-corps anti-SSA et

anti-SSB revêt un caractère important puisqu'elle peut précéder de plusieurs mois les manifestations cliniques de l'activité auto-immune. Un résultat positif permet parfois de préciser le diagnostic d'une parotidomégalie jusque-là inexplicable⁶. Rappelons qu'ils constituent des marqueurs beaucoup plus fiables du sicca syndrome que du Sjögren secondaire^{2,7}.

Le bilan immunologique peut être complété par la recherche des anticorps anti-nucléaires et du facteur rhumatoïde retrouvé chez plus de 75 % des patients⁶.

Épreuves salivaires

L'injection d'un produit de contraste dans le canal de Sténon (sialographie) permet d'apprécier radiographiquement les changements morphologiques imputables à l'atteinte auto-immune. Classiquement, l'apparition d'une image en « grappe de raisins » oriente aisément le diagnostic quoique cet examen ne se montre pas spécifique; seulement 62 % des patients porteurs d'un sicca syndrome présentent des altérations radiographiques⁶.

La scintigraphie salivaire au technetium demeure une procédure relativement coûteuse mais non invasive qui offre l'avantage d'examiner simultanément toutes les glandes salivaires majeures. L'évaluation du flot salivaire et du volume glandulaire obtenue par cet examen peuvent s'avérer des éléments utiles dans le diagnostic d'un Syndrome de Sjögren mais non essentiels toutefois.

Biopsie

Il existe une nette corrélation entre les changements histopathologiques observés au niveau des glandes salivaires majeures et ceux rencontrés aux glandes labiales mineures, même si la muqueuse les recouvrant semble normale cliniquement⁴. La biopsie des glandes mineures revêt donc un caractère essentiel dans l'investigation d'une atteinte auto-immune. Il s'agit d'une intervention facile et peu traumatisante pour le patient. L'examen microscopique démontre dans sa forme classique une atrophie acinaire avec infiltration lympho-plasmocytaire à prédominance lymphocytaire du parenchyme glandulaire. La présence d'îlots myo-épithéliaux complète occasionnellement le tableau 3.

Traitement

Les efforts thérapeutiques se limitent malheureusement à l'élimination des complications associées à la xérostomie. Le contrôle de la plaque et des maladies périodontaires, l'administration de fluor et le traitement anti-fongique des épisodes

fréquents de candidose orale demeurent à la base des traitements offerts par le dentiste⁴. Rappelons que certains patients peuvent bénéficier de l'administration de salive artificielle ou de comprimés de Sialor qui visent à stimuler la sécrétion salivaire.

Complications

Quoique le traitement des manifestations orales et systémiques du syndrome de Sjögren s'avère souvent décevant, il n'en demeure pas moins que le diagnostic précoce et le suivi de l'évolution clinique prennent ici toute leur importance. Law et Leader rapportent que le risque pour un patient atteint d'un Sicca syndrome de développer un lymphome non-Hodgkinien est 44 fois plus élevé que dans la population générale^{7,9}. Ce mécanisme de transformation lymphomateuse étant encore mal élucidé, Scully souligne toutefois certains moyens de savoir prédire l'apparition de ce désordre lymphoprolifératif : augmentation importante du volume parotidien et du taux de B₂-microglobuline sérique, baisse du facteur rhumatoïde^{6,10}.

Mentionnons finalement l'apparition peu fréquente de cas de macroglobulinémie de Waldenström, désordre apparenté au myélome multiple, chez les patients porteurs d'un syndrome de Sjögren^{2,6}. Il devient donc essentiel à la lumière de la littérature actuelle de surveiller étroitement et périodiquement l'évolution de cette maladie auto-immune.

II Diagnostic différentiel des parotidomégalias

De nombreuses lésions peuvent être responsables d'une augmentation de volume des parotides. Pour en faciliter l'évaluation, certains auteurs suggèrent une classification basée sur le caractère de leur évolution clinique^{1,2} (Tableaux 2 et 3).

1) Parotidomégalias aiguës

La formation d'un bouchon muqueux ou d'un calcul salivaire peut être à l'origine d'une obstruction aiguë du canal de Sténon. Une histoire de gonflement unilatéral survenant lors de la prise d'un repas en suggère fortement le diagnostic, qui peut être confirmé par la palpation, une radiographie intra-orale du canal ou par une sialographie⁴. Rappelons que la composition de la salive favorise nettement l'apparition de cette lésion à la glande sous-mandibulaire; par ailleurs, plus de 20 % des calculs démontrent une image radiotransparente ce qui peut rendre le

TABLEAU 2

Parotidomégalias aiguës

1. Obstruction du canal de Sténon		Déshydratation, xérostomie
	Bactériennes	Obstruction canalaire Maladie débilitante
2. Infections		Oreillons, coxsackie A. . .
	Virales	

TABLEAU 3

Parotidomégalias chroniques

1. Hypertrophie massétérierne	Bénigne	Tumeur mixte Tumeur de Whartin
2. Néoplasie	Maligne	Carcinome muco-épidermoïde Carcinome adénoïde kystique
3. Sialadénose	Obésité Hypertension Diabète Ethyisme chronique Cirrhose hépatique Malnutrition Grossesse Ménopause Médicamenteuse	
4. Infiltration granulomateuse		
5. Sialadénite bactérienne		
6. Sialadénites auto-immunes		

diagnostic plus difficile si une sonde intracanaulaire n'est pas utilisée^{2,3}.

La réduction du flot salivaire engendrée par une obstruction chronique du canal, une déshydratation, une xérostomie ou une maladie débilitante peut amener une stase bactérienne et le développement d'une infection aiguë rétrograde. La palpation de la glande, douloureuse et tendue, permet l'excrétion d'une salive purulente, infectée par le staphylocoque aureus ou le streptocoque viridans^{2,3,4}. Cette condition, beaucoup plus rare de nos jours, peut s'observer bilatéralement. Le traitement repose sur la réhydratation et l'administration d'un antibiotique dont le spectre couvre le staphylocoque producteur de pénicillinase.

De nombreux virus peuvent provoquer un gonflement douloureux habituellement bilatéral des parotides qui s'inscrit dans le cadre d'un tableau infectieux. Mentionnons le rôle du virus des oreillons chez l'enfant. La mise en évidence d'une salive claire permet de faire le diagnostic différentiel avec la sialadénite bactérienne⁴.

2) Parotidomégalias chroniques

L'hypertrophie massétérierne, en apparence anodine, doit toujours être évoquée en présence de masses parotidiennes bilatérales. Une malocclusion étant la source de cette lésion, un examen attentif du système masticateur en signe le diagnostic.

La découverte d'une lésion chronique unilatérale suggère fréquemment un contexte néoplasique de nature bénigne ou maligne. La tumeur de Whartin (cystadénome papillaire à stroma lymphoïde) et la tumeur mixte (adénome pléomorphe) qui représente plus de 75 % des lésions parotidiennes, appartiennent au groupe des lésions bénignes les plus communes³. Un examen clinique démontrant une masse indurée, fixée aux tissus sous-jacents, avec paralysie du nerf facial et croissance rapide évoque la présence d'un processus malin. Le carcinome muco-épidermoïde, l'adénocarcinome à cellules acinaires et le cylindrome constituent les cancers les plus

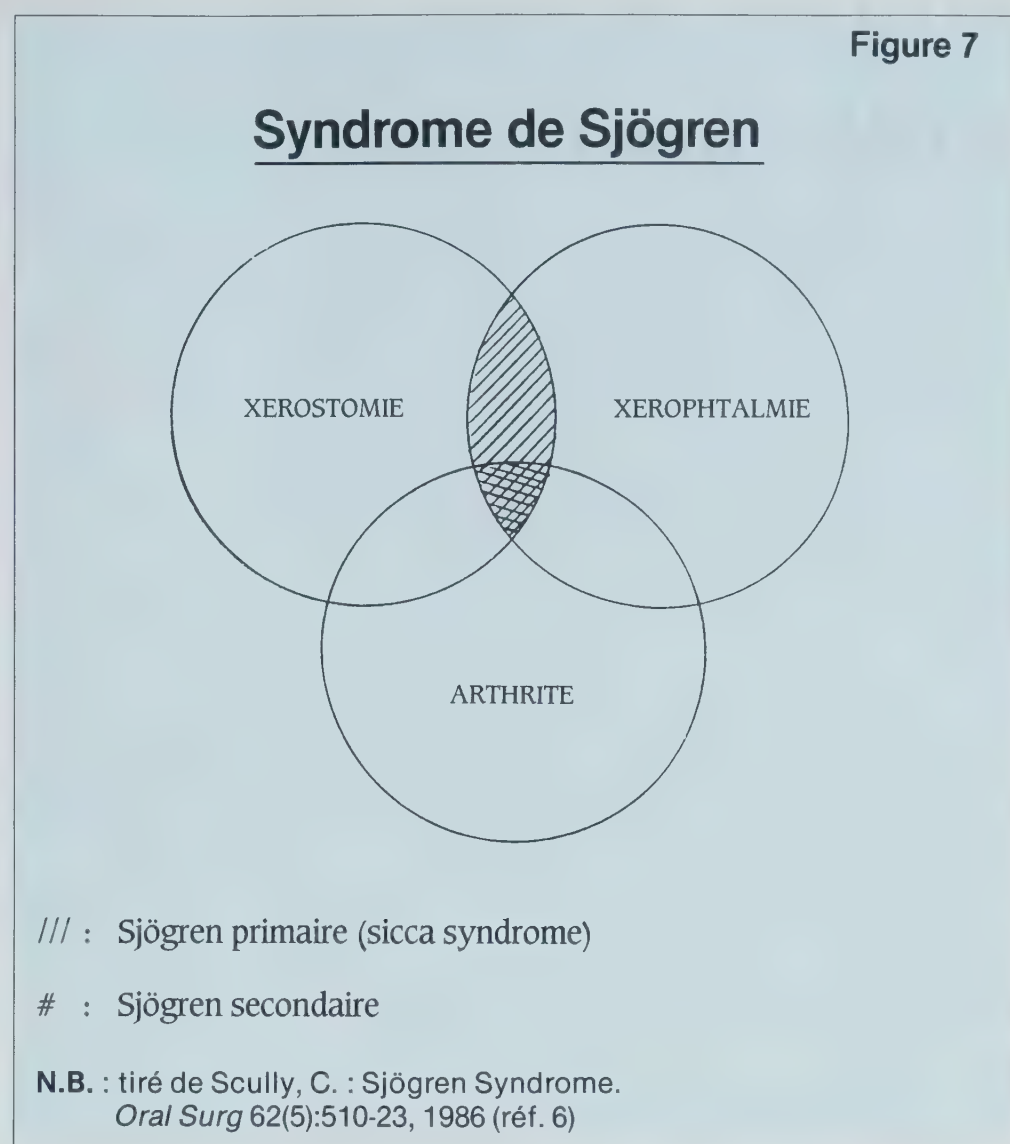
fréquemment rencontrés à la parotide³.

Certaines conditions systémiques peuvent induire un gonflement asymptomatique et bilatéral des parotides ou des glandes sous-mandibulaires. Il s'agit des *sialadénoses* qui regroupent certaines affections métaboliques et hormonales parmi lesquelles il convient de mentionner l'obésité, l'hypertension, le diabète, l'éthylisme chronique, la cirrhose hépatique, la malnutrition, la grossesse, la ménopause et la prise de certains médicaments dont la phénylbutazone^{2,4}.

Quoique d'étiologie incertaine, l'étude histologique du tissu glandulaire permet d'apprécier dans tous les cas une hypertrophie acinaire et un oedème interstitiel évoluant vers un remplacement adipeux du parenchyme glandulaire². Un diagnostic de sialadénose doit être évoqué en présence d'un gonflement parotidien progressif, bilatéral et asymptomatique, associé à une sialographie normale et à une biopsie des glandes salivaires mineures compatible. Lynch recommande l'étude du potassium salivaire dont l'élévation demeure pathognomonique de toutes ces conditions⁴.

Certaines maladies granulomateuses peuvent être responsables d'une infiltration glandulaire bilatérale en plus d'envahir fréquemment les ganglions lymphatiques. C'est le cas notamment de la tuberculose, de la sarcoïdose, de l'actinomycose ou de certaines infections par mycobactéries atypiques². Une histoire médicale orientée associée à une radiographie pulmonaire peuvent suggérer le diagnostic.

La présence d'un gonflement parotidien aigu, douloureux, récidivant, habituellement unilatéral doit soulever l'hypothèse d'un diagnostic de sialadénite bactérienne chronique, surtout si une salive teintée de matériel purulent peut être expulsée du canal de Sténon. La plupart des cas observés chez l'adulte peuvent être associés à une obstruction canalaire (calculs, bouchons muqueux, . . .) ou au syndrome de Sjögren. Certaines sialadénites bactériennes chroniques surviennent aussi chez l'enfant. L'infection, habituellement causée par le streptocoque viridans ou l'*Escherichia coli*, disparaît rapidement sous antibiothérapie appropriée. La fibrose du parenchyme glandulaire, la présence de sialangectasie et la perte de fonction constituent le stade terminal de la condition. La sialographie peut être diagnostique dans le cas d'une obstruction canalaire alors que la biopsie des glandes salivaires mineures supportée par une histoire clinique et une investigation de laboratoire appropriée permet habituellement de mettre en évidence une



atteinte auto-immune.

Mentionnons, en guise de conclusion, qu'une approche systématique s'avère essentielle à l'élaboration du diagnostic des parotidomégalies. Le dentiste, de par sa fonction et son habileté à travailler au niveau de la sphère orale, se voit un des professionnels de la santé les plus aptes à poser un diagnostic précoce basé sur une bonne connaissance du diagnostic différentiel. Δ

Le Dr Dany Morais est chirurgien buccal et maxillo-facial à l'Hôpital de l'Enfant-Jésus à Québec.

Le Dr Rénald Pérusse est professeur agrégé rattaché à la section de médecine buccale de l'École de médecine dentaire de l'Université Laval.

Les demandes de tirés à part doivent être adressées à :
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Hôpital de l'Enfant-Jésus
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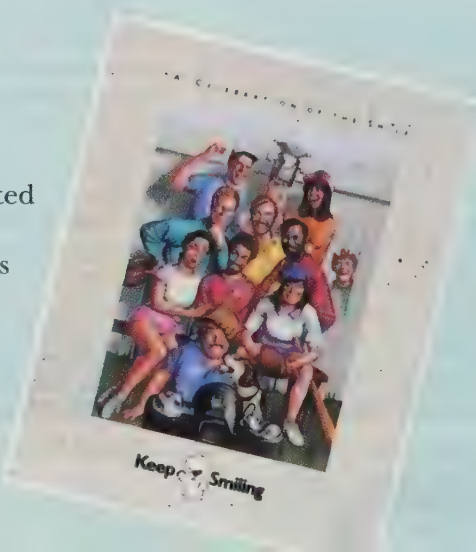
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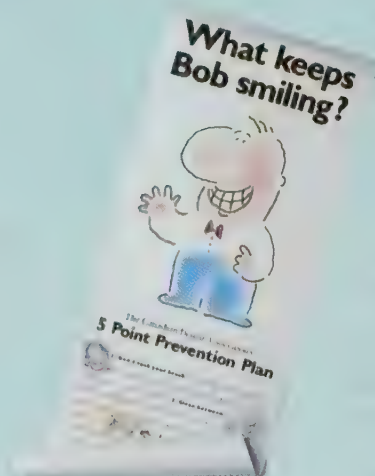
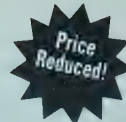
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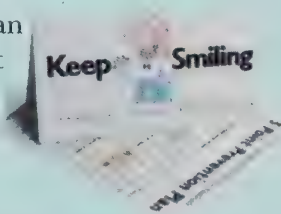


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June 10-14, 1991
Dental Hygiene Refresher Course
 Dalhousie University
 (902) 494-1674

June 15, 1991
Adult Orthodontics: Rationale and Treatment for the Combined Ortho-Perio Problems
 Edmonton Multidisciplinary Dental Study Club
 Dr. Donald Yu (403) 428-9166
 or (438-2699)

August 21-25, 1991
Annual Meeting
Canadian Academy of Endodontics
 Dr. Thomas Larder (902) 429-0477

August 24-28, 1991
Canadian Dental Association Annual Convention in Quebec City
 (See blue pages for more info)
 (613) 523-1770

October 3-5
28th Annual Scientific Meeting – Dentistry 2000
 Canadian Academy of Restorative Dentistry
 (604) 734-3720

May 12-15: American Association of Orthodontists.
 Contact: Ms. Audrey Schaper, 460 N Lindbergh Blvd, St. Louis, MO 63141, USA.

May 19-24: Academy of Denture Prosthetics.
 Contact: Dr. Charles Swoope, 1515 – 116th Ave NE, Suite 303, Bellevue, WA 98004, USA.

May 25-28: American Academy of Pediatric Dentistry in San Antonio, TX. Contact: Dr. J.A. Bogert, 211 E Chicago Ave, Suite 1036, Chicago, IL 60611, USA.

May 30–June 1: Dutch Dental Exhibition. Contact: Events Services Centre BV, Postbox 2139, 2800 BG Gouda, The Netherlands. 31-1-820-38166.

June/Juin 1991

June 5-8: Medical/Hospitech 91 in Bangkok, Thailand. For more information, contact: SHK International Services Ltd., 23/F, 151 Gloucester Rd., Wanchai, Hong Kong.

June 5-10: 3rd International Symposium cum Training Course on Osseointegrated Dental Implants in Singapore organized by the University of Pennsylvania. Contact: Orchard Dental Centre Pte Ltd., 268 Orchard Rd #05-07, Singapore 0923. Tel: (65) 7343162.

June 5-12: American Dental Hygienists Association. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Chicago, IL 60611, USA.

June 10-14: 2nd Iberian-Latin American Congress on Preventive Odontology & 2nd National Congress on Pediatric Odontology in Havana, Cuba. For more information, contact: Federacion Odontologica Latinoamericana, Calle 4, No. 407 entre y 19, Vedado, La Habana, Cuba.

June 14-17: The Third World Congress on Preventive Dentistry in Fukuoka, Japan. For information, contact: Secretariat of WCPD '81, c/o Dept. of Preventive Dentistry, Faculty of Dentistry, Kyushu University 61, Higashi-ku, Fukuoka, 812 JAPAN.

July/Juillet 1991

July 12-17: Academy of General Dentistry. Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

July 14-16: 12th International Conference on Oral Biology in Athens, Greece. Contact: International Association for Dental Research, 1111-14th St NW, Suite 1000, Washington, DC 20005, USA. Fax (202) 789-1033.

August/Août 1991

August 8-11: American Academy of Esthetic Dentistry in Santa Barbara, CA. Contact: Ms. Cheryl Kraus, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA. (312) 664-2122.

September/Septembre 1991

September 12-15: International Association for Orthodontics. Contact: Joanna Carey, 211 E Chicago Ave, Suite 915, Chicago, IL 60611, USA. (312) 642-2602.

September 25-29: American Association of Oral & Maxillofacial Surgeons in Chicago. Contact: Lisa Sykes, 9700 W Bryn Mawr Ave, Rosemont, IL 60018, USA. (708) 678-6200.

September 27-30, 1991: 13th Congress of the International Association of Dentistry for Children, Kyoto, Japan. For information contact the Secretariat, 13th Congress of the International Association of Dentistry for Children, c/o Japan Convention Services, Inc., Sumitomo Seimei Midotsuji Bldg., 4-14-3, Nishitemma, Kita-ku, Osaka 530, Japan.

March/Mars 1991

March 1-8: American Board of Orthodontics. Contact: Dr. G.D. Selfridge, 225 S Meramec, Suite 310, St. Louis, MO 63105, USA.

March 17-21: 26th Australian Dental Congress in Adelaide, Australia. For more information, contact: National Congress Office, P.O. Box 29, Parkville, Victoria 3052, Australia.

March 27-28: Big Apple New York Dental Meeting. Contact: Dr. L. Zucker, 3201 Grand Concourse, Bronx, NY 10468, USA.

April/Avril 1991

April 6-13: 27th International Alpine Dental Conference in Courchevel 1850 France. For more information, contact: International Dental Foundation, 53 Sloane St., London SW1X 9SW, England. Tel.: 071-235-0788.

April 12-13: International Orthotropic Symposium in Chicago. Contact: Gene Bonofiglio, Symposium Chairman, 630 – 36th St SW, Grand Rapids, Michigan 45903, USA.

April 17-21: American Association of Endodontists. Contact: Ms. I.S. Kudo, 211 E Chicago Ave, Suite 1501, Chicago, IL 60611, USA.

April 17-21: American Association for Dental Research in Acapulco. Contact: Judith Gauchel, 1111-14th St NW, Suite 1000, Washington, DC 20005, USA. (202) 898-1050.

May/Mai 1991

May 2-5: American Academy of Cosmetic Dentistry in New Orleans. Contact: Ms. Barbara Jo Zoeller, 2709 Marshall Crt, Madison, WI 53705, USA.

May 9-12: American Dental Society of Anesthesiology. Contact: Mr. Peter Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

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INSTRUCTIONS FOR CONTRIBUTORS

The Journal of the Canadian Dental Association welcomes the submission of previously unpublished articles, critical reviews of material on advances in dentistry and clinical reports for consideration for publication. Material is accepted for publication on the understanding that it is submitted solely to the Journal and that it has not previously been submitted elsewhere.

Scientific Articles:

are contributions dealing with research, diagnosis and treatment of dental disease, studies in education, clinical and laboratory research and other detailed investigations pertinent to dentistry and related fields. The text should not exceed 3,000 to 4,000 words (approximately four Journal pages).

Clinical Reports:

are brief (up to 2,000 words) reports, case histories and clinical observations. References should be limited and minimum number of illustrations used.

Opinions:

fully documented (800 words or less) are welcome to be reviewed for publication at the discretion of the editor.

Manuscript Requirements:

Submit three (3) copies (original and 2 duplicates) to the Editor, Journal of the Canadian Dental Association, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. All graphs, photographs, charts and tables must also be submitted in triplicate. Authors are also requested to submit their article on computer disk if available. IBM compatible material is preferred. For more details, please contact the editorial staff.

A covering letter designating one author as correspondent with a full address and telephone number must accompany the article. All scientific articles are subject to review by selected consultant referees. Acceptance or rejection of an article for publication is based on the referees' reports plus editorial consideration.

The editor reserves the right to edit manuscripts for stylistic consistency, clarity and conciseness. The author named as correspondent will receive a copy of the edited manuscript for checking prior to publication. Authors will also be able to proofread their article at the galley stage; however, **no changes** other than typographical corrections may be made. If the author does not respond

within 48 hours of receipt, acceptance will be assumed. **No exceptions** will be made.

Manuscript Format:

All material (title, abstract, text, references, tables and legends) should be typed, double-spaced on one side of 8½ × 11 pages with margins of at least one inch on all four sides.

Article Titles:

should be descriptive but concise and suitable for indexing. Lengthy titles will be subject to editing.

Abstract:

stating the purpose, results and conclusion of the work must accompany all manuscripts. All abstracts will be translated into French (or English as the case may be). Abstracts should be approximately one typewritten page (250 words in length).

Authors Affiliations:

The authors' names, degrees, and university affiliations must be provided. Authors are responsible to disclose to the Editor any financial interests they may have in products mentioned in their article.

References:

should be selective. They must be keyed to the text and numbered consecutively. Journal references must give the author's name, article title, abbreviated journal name, volume number, first and last page numbers of articles and year of publication.

1. Hechter, F.J., Symmetry and dental arch form of orthodontically treated patients. *JCDA* 44:173-184, 1978.

For books give the author's name, book title, location and name of publisher and year of publication.

2. Kilpatrick, H.C. Work simplification in dentistry, ed. 2, Philadelphia, Saunders, 1964.

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All photographs should be submitted in triplicate as glossy black and white prints. Graphs and line drawings should be of professional quality and the original drawing submitted or a black and white glossy print.

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On the back of each print or slide, the figure number and the top edge should be indicated lightly using a grease pencil. Each set of photographs and slides should be placed in a separate envelope and marked with the authors' name and the title of the article. Photographs and slides will be kept on file in the Journal department for a year following publication. Authors may request return of the illustration only up until that time.

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Most articles are published at no cost to the author, but a fee could be levied if extensive illustrative, formular, tabular or photographic matter is used.

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Reprints:

Twenty-five complimentary reprints are mailed to the corresponding author after the article is published. Additional reprints are available through the Journal of articles with black and white illustrations only. Additional copies of articles containing colour photographs must be requested before publication. Prices for reprints are available upon request.

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Is it on the Exam?

D.S. Precious and K. Ozcan

University education should foster and nourish eager minds. Statements of precise goals, course objectives, and methods of evaluation are necessary bits of information for modern dental students. These guides enable the student not only to learn in an organized, systematic fashion, but also to know in advance, the format and method of the evaluation system. In theory and to some extent in practice, this works well for both the student and the teacher, but does this approach serve the patient? Does this approach produce a clinician, who, at the end of formal training, puts the patient's interests above all else? We believe there is a danger that the student can spend four years in dental school, wanting to know "*is this material on the exam?*" Should not educators, clinicians and students direct their efforts towards wanting to know "*Is this material necessary information which will allow me to better treat patients?*"

With this basic thought in mind, we suggest the following ideas which we believe could influence the students experience in dental school to the benefit of the patient:

1. Clinical teaching must be done by clinicians. These teachers must serve as a role model in demonstrating behaviour which **proves** to the student that the patient comes first.
2. Comprehensive oral examinations should be encouraged. These examinations can be structured to use "stations" where real life situations can be tested. It might even be possible to test questions of ethics using this approach.
3. The excitement of learning by discovery should not be denied to a dental student. This, of course, implies that the student accepts some responsibility for his/her own education.
4. Course objectives must be written in such a way that they do not simply represent the minimum amount of material which is necessary for a student to know in order to pass the exam.

Let us avoid spoon-feeding. Let us allow the student to be a participant in the educational process. Let us strive to serve the patient rather than the examination.

Dr. Precious is Professor and Chair, Oral and Maxillofacial Surgery.

Mr. Ozcan is a fourth year dental student at Dalhousie University, Halifax.



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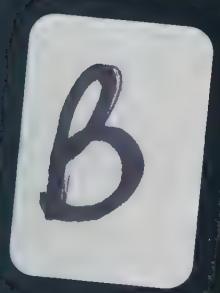


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JOURNAL

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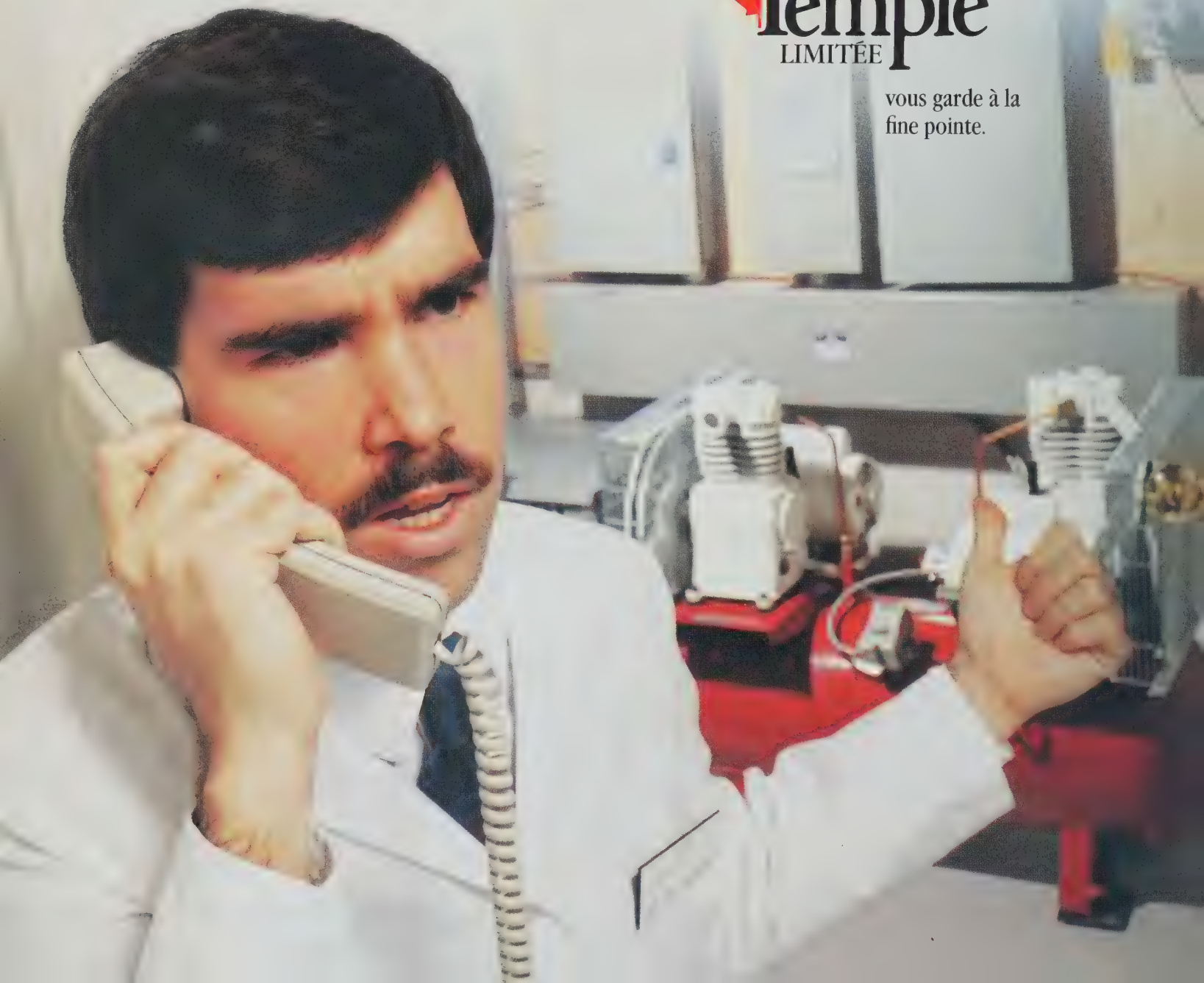
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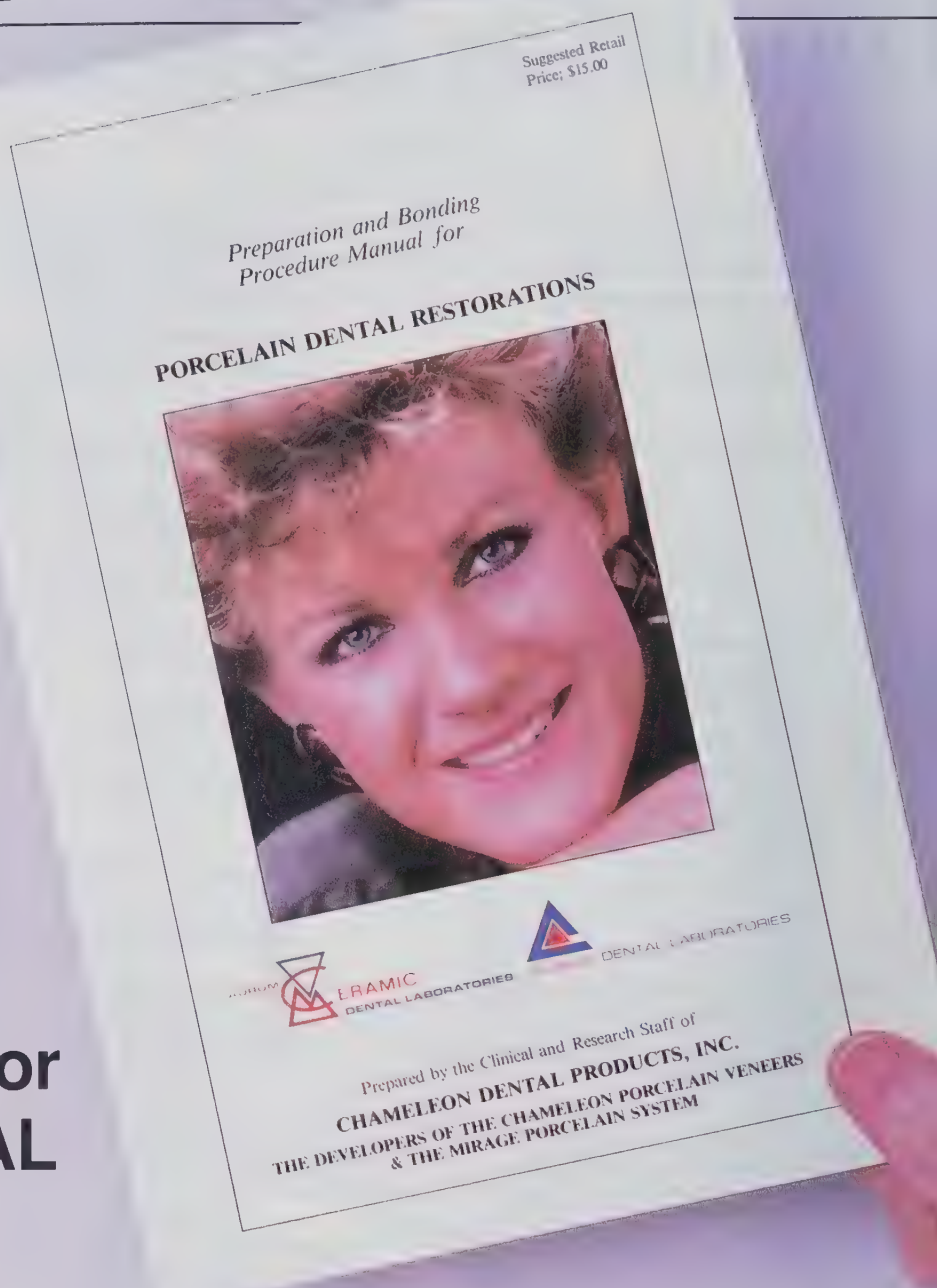
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JOURNAL

L'Association
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Mars 1991

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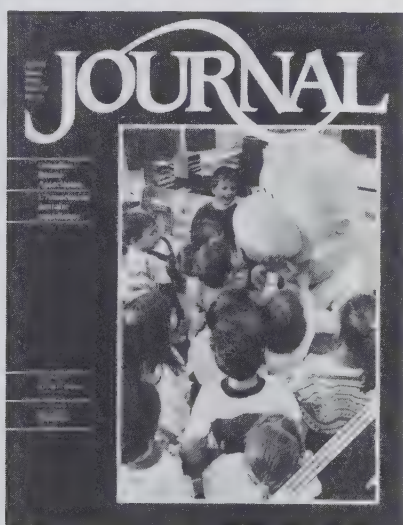
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(PHOTO : PAT MCGRATH, OTTAWA)

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ET LA TÊTE, ÇA VA PAS?

La nôtre, au contraire, elle est parfaite. Il s'agit, après tout, de la partie la plus importante d'une brosse à dents. Voilà pourquoi nous avons mis tout ce temps et ces soins en concevant celle d'Oral-B.

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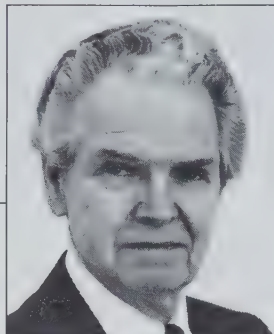
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LE GRAND BROCHET (En seriez-vous un?)

Le dictionnaire décrit le grand brochet ou le brochet du Nord, *Esox Lucinas*, comme un poisson d'eau douce élancé, féroce, au museau plat et pointu, à la mâchoire inférieure en saillie et aux dents aiguës. Sa taille peut être considérable et il n'est pas rare qu'il atteigne 40 livres. Aussi déploie-t-il au combat une énergie formidable. D'appétit vorace, il s'attaque au fretin, aux jeunes poissons, aux canetons et à la plupart des appâts. Quant à son intelligence, on se pose des questions car elle n'est pas sans rappeler celle de certaines gens.

On raconte que des chercheurs ont mis un brochet dans un immense aquarium avec une abondante provision de petits poissons — un véritable festin pour lui. Après quelque temps, ils l'ont emprisonné dans une cloche de verre comme dans une cellule invisible à l'intérieur d'une cellule plus grande.

Après avoir dévoré les poissons emprisonnés avec lui, le brochet s'est mis à foncer sur les autres en dehors de la cloche. Ce fut alors que les difficultés commencèrent. Chaque fois qu'il pensait attraper un poisson, il se heurtait durement le museau et se trouvait contrarié, les poissons nageant d'un côté de la paroi de verre et lui, frustré, de l'autre avec un museau de plus en plus endolori. Aussi finit-il par abdiquer.

Quand les chercheurs retirèrent la cloche de verre pour permettre au brochet de nager librement avec les autres poissons, ils observèrent un phénomène : le brochet ne cherchait nullement à happer les poissons autour de lui, étant conditionné à croire qu'il ne pouvait plus les atteindre. Il était condamné à mourir lentement de faim.

Les dentistes seraient-ils comme le grand brochet? Se peut-il qu'ils soient conditionnés à ignorer ce qui est évident? Se peut-il qu'ils le soient à ne plus satisfaire leurs besoins les plus profonds en plaçant une barrière invisible entre eux-mêmes et ce qui peut les nourrir et les enrichir?

Qu'on songe à l'éducation permanente. Dans les années 1990 (ou à quelque époque que ce soit), il est impossible pour un dentiste de rester compétent sans suivre constamment de près les progrès des sciences et de la technologie. Pourtant, il y en a, semble-t-il, qui ne veulent jamais changer. Dans certaines provinces, on les verra rarement assister à des conférences ou à des cours à moins que ce ne soit obligatoire.

Des principes éthiques, des compétences, un environnement sain, ce sont toutes là des valeurs intrinsèques nécessaires pour se réaliser personnellement. Pourtant, combien souvent l'apathie, l'égoïsme et la cupidité s'infiltreront-ils en nous au point où l'accomplissement de notre personne sur le plan professionnel ne veut plus rien dire?

(suite à la page suivante)

Qu'on songe à l'Association dentaire canadienne. Elle a été fondée il y a 89 ans parce que des dentistes consciencieux ont reconnu que, dans un vaste pays à développer comme le nôtre, la profession ne pourrait jamais remplir son mandat en se réfugiant sous une cloche de verre. Pourtant, aujourd'hui, il se trouve encore des praticiens ayant le syndrome du grand brochet.

Combien y en a-t-il parmi nous qui, chaque jour, tirent profit des programmes nationaux de l'ADC sans en reconnaître — en seraient-ils incapables? — la valeur? Qu'on songe à la campagne de sensibilisation que l'ADC mène avec un énorme succès auprès du public ainsi qu'aux relations qu'elle entretient avec le gouvernement et qui n'ont jamais été meilleures. Qu'on songe aussi à son centre de documentation qui ne le cède à aucun autre et à la surveillance constante qu'elle exerce sur les régimes d'assurance dentaire. Et que dire de l'agrément et du *Journal* dont les articles scientifiques sont revus par un comité de lecture? Ce sont là simplement quelques-unes des multiples valeurs que seul un organisme national est en mesure d'assurer.

L'ADC rend assurément des services d'une valeur inestimable à tous et à chacun des dentistes du Canada. Malheureusement, un mur invisible que nous bâtissons trop souvent nous-mêmes nous cache l'évidence. Nous pouvons nager dans la mer d'avantages que l'ADC nous offre comme association nationale, mais si notre esprit est fermé, nous ne le reconnaitrons pas.

Pour commencer, il conviendrait de ne jamais nous enfermer dans une cloche de verre. Il nous faut plutôt échanger entre nous, chercher, poser des questions, en soulever — prendre part aux débats dentaires qui se déroulent autour de nous. Qu'on songe donc à ce qui est arrivé au brochet. Il avait des moyens de subsistance à sa portée, mais il ne le comprenait pas et, faute de le comprendre, il ne lui restait plus qu'à mourir.

P. Ralph Crawford, BA, DMD

Le rédacteur en chef du Journal de l'Association dentaire canadienne

Le mot du Président



Le Mois de la santé dentaire Y participez-vous?

L'un de nos premiers rôles en tant que professionnels de la santé est de sensibiliser davantage nos patients aux bienfaits de la santé dentaire.

À mon avis, pouvoir influencer le comportement d'un patient pour l'amener à être plus réceptif à la prévention est une tâche qui me plaît beaucoup. En effet, qu'y a-t-il de plus agréable que de pouvoir rappeler un patient qui était de classe IV en hygiène et qui est maintenant de classe I et n'a plus de caries?

En tant que praticiens, il nous appartient de communiquer à notre clientèle les informations nécessaires pour changer leurs habitudes en faveur de la prévention. C'est une tâche que nous devons remplir chaque jour quand nous exerçons.

Chaque année, cependant, nous devons faire un peu plus, et certes, oui, nous pouvons poser un petit geste qui fait toute la différence.

Je veux parler de la campagne du *Mois de la santé dentaire* (MSD) qui se tient en avril. En parcourant le pays et en échangeant avec les gens que je rencontre, je me rends compte que les problèmes sont partout les mêmes mais à une ampleur différente. L'un d'eux provient du fait que des dentistes ne participent pas aux activités de la campagne. Ainsi, il est de plus en plus difficile d'en trouver qui sont disposés à consacrer une demi-journée ou une journée pour aller, par exemple, rencontrer les gens dans les centres commerciaux ou visiter des établissements pour personnes âgées.

Notre profession ne diffère guère du monde dans lequel nous vivons. En général, les gens sont de moins en moins généreux avec leur temps, accaparés qu'ils sont par leurs propres responsabilités.

Pourtant, suivant notre Code déontologique, le dentiste a un rôle social à jouer. Ne devons-nous pas rendre à la société ce que nous en avons reçu? C'est là une vérité aussi simple qu'elle paraît. Donner du temps à la société ne peut que contribuer à améliorer l'image de notre profession. Nous sommes censés être des professionnels ayant à coeur le bien-être des gens.

La campagne du MSD n'est pas simplement l'affaire de chacun de nous; elle l'est aussi des provinces et du pays tout entier.

Avec Bastien comme mascotte, l'ADC essaie de remplir son rôle en collaboration avec les provinces qui le désirent. Une campagne qui peut être préparée en fonction des besoins particuliers de chaque province me paraît le meilleur moyen pour réaliser un tel programme.

Malheureusement, nous voyons des provinces qui cherchent à faire cavalier seul. Je peux comprendre qu'il est important de chercher à être son propre maître, mais non quand on peut obtenir plus à moindre prix avec un programme mis sur pied en collaboration avec les parties.

Très bientôt, l'ADC devra revoir sa position touchant le financement de la campagne du MSD afin de répondre aux besoins de ses corporations membres.

Pour terminer, je vous incite tous en tant que dentistes à vous préparer personnellement ce mois-ci pour participer à la campagne d'avril. Votre participation est nécessaire pour que la campagne de cette année soit un immense succès. Votre profession vous en remerciera.

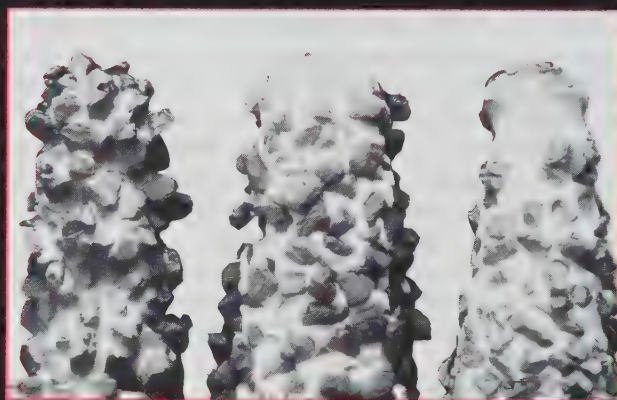
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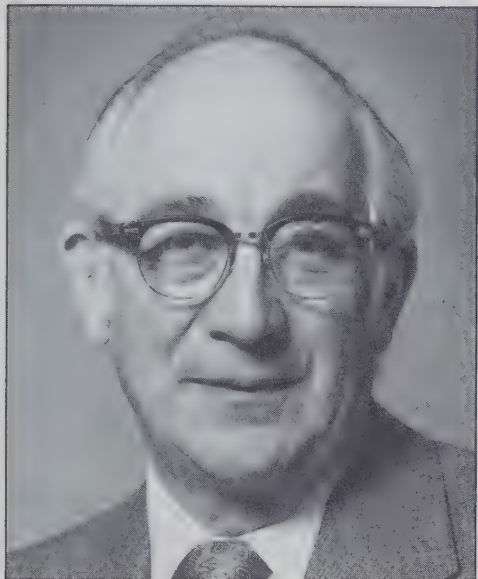
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Le D^r A. Schwartz se joint au personnel de l'ADC



Le D^r Arthur Schwartz

Le 1^{er} janvier dernier, le D^r Arthur Schwartz est devenu directeur adjoint des Services professionnels de l'ADC, à Ottawa. À ce titre, il doit superviser le Comité des produits de consommation et des matériaux dentaires et veiller à ce que des membres du personnel cadre participent aux travaux du Comité de l'éducation et de l'agrément, des comités du Test d'aptitudes aux études dentaires et des conférences annuelles sur l'enseignement parrainées par le FCED et organisées par l'ADC. Le temps le lui permettant, il doit également aider M. Brian Henderson, directeur de l'Éducation et de l'Agrément, à diriger les enquêtes d'agrément effectuées dans les universités et les hôpitaux du Canada.

Doyen de la Faculté de médecine dentaire de l'Université du Manitoba de 1978 à 1989, le D^r Schwartz en a été nommé doyen honoraire le printemps dernier. Ses expériences comme président du Conseil de l'éducation et de l'agrément, comme président de l'Association des facultés dentaires du Canada, comme président du Comité spécial de l'autorisation des spécialistes dentaires et comme représentant de l'ADC au Bureau national d'examen dentaire le qualifient hautement pour son nouveau poste. Δ

L'ADA élit un nouveau président

À la dernière assemblée du Conseil des représentants tenue à Boston, l'Association dentaire américaine a élu son 127^e président, le D^r Eugene J. Truono, un praticien général du Delaware.

Un diplômé de l'École de médecine dentaire de l'Université Temple, le D^r Truono



Le D^r Eugene Truono, président de l'ADA

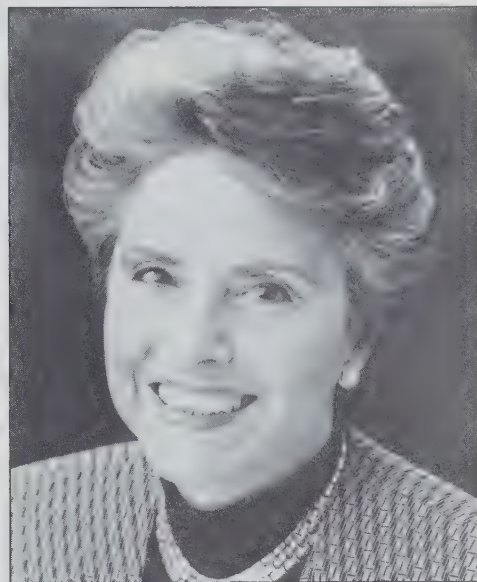
a fait partie du Conseil d'administration de l'ADA pendant six ans, y représentant le 4^e district qui comprend le Delaware, le New Jersey, le Maryland, le District de Columbia, Porto Rico, les îles Vierges et le Service dentaire fédéral.

Le D^r Truono et son épouse, Delores, ont sept enfants et demeurent à Greenville, dans le Delaware.

Une femme dentiste élue présidente-désignée

La D^{re} Geraldine T. Morrow, praticienne générale à Anchorage (Alaska), vient d'entrer dans l'histoire de la médecine dentaire. Pour la première fois dans ses 131 années d'existence, l'ADA a désigné une femme dentiste pour remplir le plus haut poste de l'organisme l'an prochain. Celle-ci y accèdera en octobre, au Congrès annuel de l'ADA qui aura lieu à Seattle.

Diplômée de l'École de médecine dentaire de l'Université Tufts en 1956, la D^{re} Morrow exerce la dentisterie générale depuis ce temps à Anchorage. En allant



La D^{re} Geraldine T. Morrow, présidente-désignée

s'établir en Alaska, elle voulait y faire de la dentisterie une profession. Aussi a-t-elle participé à la création de la Société dentaire de l'Alaska et de la Division d'Anchorage et, pendant six ans, a-t-elle été représentante du 11^e District de l'ADA.

La D^{re} Morrow cherche à minimiser l'importance du fait qu'elle sera la première présidente de l'ADA : « Si l'ADA tire profit du fait que je suis une femme, tant mieux; autrement, je ne vois aucune différence. » Δ

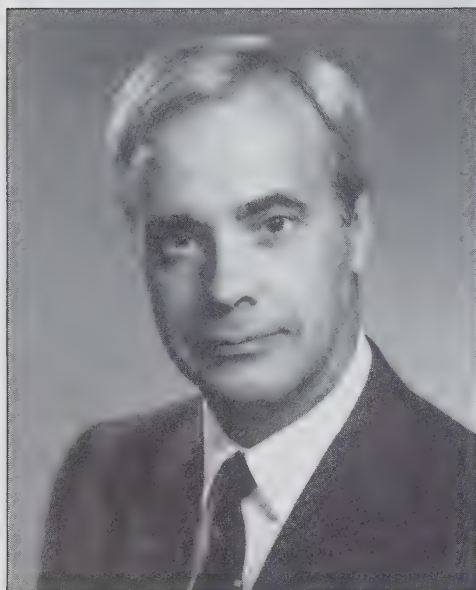
Le saviez-vous?

C'est différent au Japon!

Un fabricant de bonbons se disposait à lancer sur le marché une tablette de chocolat remplie d'arachides pour donner rapidement de l'énergie aux étudiants qui préparent des examens. Heureusement, le fabricant, influencé par les Américains, a découvert juste à temps que, dans le folklore japonais, le chocolat et les arachides consommés ensemble passent pour faire saigner du nez. (Cette idée viendrait-elle d'un dentiste par hasard?)

Au Japon, on ne vend pas du Diet Coke mais du Light Diet. Dans un pays où la plupart des gens sont de mince taille comparativement aux normes américaines, peu songent à suivre une diète. De plus, la diète désigne le parlement japonais.

Le Dr Marc Boucher est réélu à la présidence de l'Ordre



Le Dr Marc Boucher

Lors de la dernière réunion du Bureau des administrateurs de l'Ordre des dentistes du Québec, tenue le 23 novembre dernier, le Dr Marc Boucher, administrateur de la région C (Québec), a été réélu à la présidence de l'Ordre pour un troisième mandat consécutif.

Le Dr Boucher a été élu au Bureau pour la première fois en octobre 1972. Il a été membre du Comité administratif en 1976. Le 19 novembre 1982, il était élu à la présidence pour un premier mandat. Le Bureau le reconfirmait à ce poste le 21 novembre 1986.

Le Dr Marc Boucher exerce en pratique privée à Québec depuis 1960. Il est membre de plusieurs associations professionnelles.

Le Bureau a également élu le Dr Robert Salois (Estrie) au poste de vice-président et a complété la formation du Comité administratif de l'Ordre pour l'année 1991 en y élisant les Drs Clyde Covit (Montréal) et Robert L'Heureux (Laurentides) et madame Andrée Tremblay, représentante du public désignée par l'Office des professions du Québec. Δ

Le SDFC à Oka



L'équipe dentaire du SDFC à Oka. De gauche à droite, au premier rang : le caporal Montgomery, le caporal J.F. Bélanger, le soldat M.M. Binette, le caporal J.B.L. Aubin, le caporal B.P. Hanlon; dans le même ordre, au second rang : le capitaine J.R.D. Gagnon (U. de Montréal, 1990), le capitaine J.M. Maltais (U. de Laval, 1989), le major J.C. Taylor (U. de la Colombie-Britannique, 1984), le capitaine J.A.A. Rioux (U. Laval, 1989) et le capitaine T.W. Hogan (U. Dalhousie, 1987).

Le 20 août dernier, des membres du Service dentaire des Forces canadiennes ont reçu l'ordre de se mettre à la disposition des militaires postés à Oka et à Châteauguay, au Québec. Quatre sections ont alors été déployées dans les unités divisionnaires, chacune comprenant un officier dentaire, un assistant dentaire et un camion de deux tonnes et demie transportant une clinique dentaire entièrement équipée et remorquant un générateur de 10 kw.

Complètement chauffés et climatisés, ces véhicules contiennent un équipement dentaire portatif Adec, un fauteuil Den-Al-Ez, une lampe à éclairage vertical Pelton-Crane, un appareil de radiographie Siemens et un stérilisateur Harvey. Un système de pompe intrinsèque y maintient la pression de l'air et de l'eau, et l'approvisionnement en produits dentaires de consommation y est suffisant pour trente jours. Ces cliniques sont donc tout à fait autonomes. Exigeant seulement une source d'eau potable et du gas-oil, une clinique peut être prête à recevoir des patients en moins d'une demi-heure.

Au début de la campagne, les équipes

ont offert des soins d'urgence et effectué des examens dentaires complets aux militaires sur place, étant donné qu'il est de règle dans l'armée d'en recevoir au moins un par année. Cependant, la campagne se prolongeant, ils en sont progressivement venus à offrir des soins ordinaires de dentisterie générale. Par ailleurs, le SDFC avait prévu un moyen d'évacuer par hélicoptère les sujets qui auraient eu des blessures maxillo-faciales sérieuses pour les conduire à Montréal.

L'administration et la logistique avaient été confiées à la 15^e Division dentaire située à Montréal. Un technicien pour équipement dentaire était disponible sur appel à toute heure du jour et de la nuit, et c'est lui qui veillait au réapprovisionnement des cliniques à partir de la base de Montréal.

Cette campagne a démontré que le SDFC est en mesure d'offrir à l'armée canadienne les soins nécessaires quand il est appelé en mission. Δ

La rédaction remercie le major J.C. Taylor, DMD, commandant de peloton.

L'ADC rend hommage à son personnel



LINDA TETERUCK
1975
directrice des Communications

En décembre dernier, l'ADC a offert, à son siège social, à Ottawa, une réception pour rendre hommage aux membres de son personnel qui se sont distingués par l'excellence de leur travail. Le président, le Dr Gilles Dubé, a présenté des certificats aux employés qui comptent à leur actif cinq, dix et quinze ans de loyaux services à l'organisme.

À la même occasion, M. Jardine Neilson, directeur général, a présenté des prix en argent aux gagnants du concours de suggestions tenu par l'ADC. Δ



LYDIA ALLISON
1980
responsable du Recrutement



JARDINE NEILSON
1985
directeur général



WIN MOBLEY
1978
secrétaire des Communications



KELLY MARIE KLAASSEN
1978
responsable du courrier



BRIAN HENDERSON
1983
directeur de l'Éducation et de l'Agrément



SANDRA DEZIEL
1980
chef des Services de direction



MARSHA MASLOVE
1983
bibliothécaire



LORRAINE EMMERSON
1984
secrétaire générale de l'AFDC



Titre: Prix de mérites pour suggestions



DORIS HOLMES
1982
secrétaire des Services professionnels



L'amélioration du milieu de travail est d'un intérêt tout particulier pour les employés de l'ADC. Pour cette raison, le programme de Prix de mérites pour suggestions fut créer en 1990. Le concours avait comme but le rassemblement des idées venant des employés. Depuis son inauguration l'an dernier, au delà de 250 suggestions furent reçues dont la plupart touchaient le progrès et le perfectionnement de différents aspects du milieu de travail. Les récipiendaires des prix octroyés lors de la présentation sont : Lisa Burke, dont la suggestion de produire un répertoire interne lui a mériter 50 \$; Louise Després Jones 250 \$ pour la création d'un communiqué pour le personnel, et Bernie Dacey, gagnante du prix de 100 \$ pour sa proposition de cours de RPC.

La FDP ferme ses portes



Le Dr Gilbert Utas

Après avoir tenu aux trois ans des assemblées pendant presque 65 ans, la Fédération dentaire du Pacifique (FDP) a fermé ses portes. Fondée à Portland (Orégon) en 1926, à l'époque où l'on voyageait principalement par bateau et par train, la FDP avait pour but de fournir une tribune aux pays, aux états et aux provinces de la région du Pacifique. Voulant bien servir ses membres, elle s'était fixé les objectifs suivants :

- faire progresser l'art et la science de la dentisterie dans toutes ses branches
- encourager ses membres à développer des liens fraternels entre eux
- donner plus de prestige à la dentisterie
- promouvoir et maintenir des normes élevées dans l'enseignement et l'exercice de la dentisterie.

Pour favoriser la camaraderie entre les participants et leurs familles, la FDP tenait habituellement ses assemblées dans des endroits de villégiature. Nombreux sont ceux qui ont gardé de bons souvenirs des rencontres tenues à Long Beach, Reno, Jasper, Honolulu, Acapulco, Vancouver et Phoenix. La dernière a eu lieu à Banff, en 1987. Le Dr Gilbert Utas, de Grande Prairie (Alberta), a été président de la FDP de 1984 à 1990. Comme tous ses prédécesseurs, il a su servir l'organisme avec zèle et distinction.

Maintenant que l'avion a rétréci le monde et multiplié les occasions de suivre des cours en éducation permanente, il est apparu que la FDP n'avait plus vraiment sa raison d'être. C'est pourquoi on a décidé de la dissoudre, mettant fin à un autre chapitre important dans l'histoire de la médecine dentaire. Δ

Comparaison des prothèses partielles fixes et amovibles

Dans cette étude clinique, on a comparé durant une période de cinq ans les prothèses et les autres besoins dentaires de deux groupes de personnes âgées. Toutes avaient une prothèse supérieure complète, mais une moitié (le groupe A) avait reçu des prothèses partielles amovibles avec pont à extension distale, alors que l'autre moitié (le groupe B) en avait reçu des fixes avec pont en porte-à-faux (cantilever) distal. Tous les patients ont reçu des soins d'hygiène bucco-dentaire et de dentisterie prothétique et leurs examens annuels portaient sur les points suivants : les caries, l'état du parodonte, l'état des prothèses et l'évaluation du système mastocatoire (y compris l'articulation temporo-mandibulaire, les muscles et toutes les fonctions mandibulaires). Les résultats ont démontré que :

- le groupe A avait six fois plus souvent des caries
- dans le groupe A seulement, l'occlusion devenait très instable et l'ATM accusait des signes et des symptômes de dysfonction
- dans le groupe A seulement, la prothèse supérieure complète était

beaucoup moins stable

- le groupe A avait besoin de plus de soins prothétiques (nouvelles prothèses, rebasages, reprises) que le groupe B
- le groupe A avait besoin de beaucoup plus de soins dentaires à cause d'un plus grand nombre de caries et des conséquences qu'elles entraînent (fractures, extractions et soins d'endodontie).

Les auteurs ont conclu que les avantages économiques des prothèses partielles amovibles comparées à ceux des fixes sont moins évidents à long terme quand on songe aux divers soins exigés après le traitement initial. Δ

Budtz-Jorgensen E. Isider F. *J Pros Dent*, 64:42, 1990.

Un merci tout spécial à
THE DENTALETTER
décembre 1990

THE DENTALETTER est un bulletin de huit pages dont chaque numéro contient les résumés d'environ 25 articles et se lit en 30 minutes, mettant les dentistes au fait des dernières nouvelles en médecine dentaire. Pour vous y abonner, veuillez écrire à : 133 rue Richmond ouest, Toronto, M5H 3M8; ou composer le (416) 869-1777.

Regardez et découvrez
les 'PAGES BLEUES'
du JOURNAL de l'ADC

(Le Congrès annuel de l'ADC 1991 - à lire!)

Merci aux donateurs du Musée

L'ADC tient à remercier les personnes qui ont fait des dons à son Musée. Maintenant que l'immeuble du siège social à Ottawa a été rénové, on a l'espace nécessaire pour y réaliser un vieux rêve et y aménager un musée qui témoigne de notre fier passé.

L'ADC remercie tout spécialement les personnes dont les dons ont permis de commencer une collection qui promet d'être tout à fait exceptionnelle :

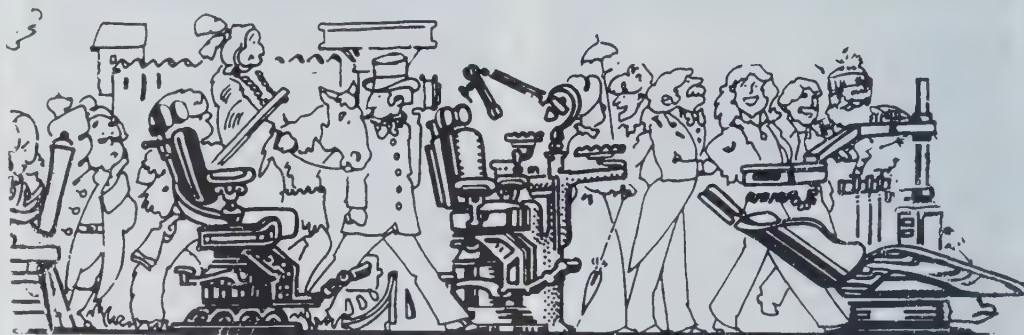
- **le Dr Maurice Lemieux, d'Ottawa :** une grande collection d'instruments et de fournitures rappelant les cabinets et les laboratoires d'autrefois; nous aurons besoin de votre aide pour identifier certains objets.
- **le Dr Mark Trépanier, de Farnham (Québec) :** des instruments et des pièces d'équipement provenant du cabinet où il a succédé à son père; on prise tout particulièrement des exemplaires du *Journal* de 50 ans passés.
- **le Dr James Mcleod, de Montréal :** une belle armoire en acajou pour les instruments dentaires qui a été restaurée et remonte à 1920.
- **le Dr Brian Friesen, de Winnipeg :** un équipement, un fauteuil et une armoire fabriqués par la société Ash en 1920.
- **la Dr^e Margaret Shek, d'Arthur (Ontario) :** un tour de laboratoire dentaire à pédale de marque S.S. White, une pièce unique en son genre remontant à 1900 environ.
- **le Dr D.J. Beauprie, de Deep River (Ontario) :** un engin dentaire mû par une turbine à jet d'eau, un précurseur de la turbine à air Borden.
- **le Dr David Spencer, de Guelph (Ontario) :** une collection extrêmement rare et unique en son genre de prothèses dentaires des XVIII^e et XIX^e siècles; on projette de présenter cette collection à travers le Canada.

Le Musée est toujours à la recherche d'objets qui ont une valeur historique pour la médecine dentaire, plus particulièrement :

- de fauteuils dentaires des années 1900.
- d'appareils de radiographie fabriqués avant 1930.
- d'équipements de laboratoire anciens.
- de vieilles photos et de vieux programmes de rencontres dentaires.

Pour de plus amples renseignements, veuillez communiquer sans frais avec le Dr Ralph Crawford, à l'ADC, à Ottawa : l'Est du Canada : 1-800-267-6364 l'Ouest du Canada : 1-800-267-6354. Δ

Le Journal autrefois



Il y a 50 ans ce mois-ci. . .

- Dans un entrefilet du *Journal*, on pouvait lire : « Abattez Hitler avec vos dollars. Achetez des certificats d'épargne de guerre. »
- La population du Canada comptait 9 800 000 habitants et 3 571 dentistes, soit un pour 2 760 personnes. Aux États-Unis, il y en avait un pour 1 287.
- L'abonnement au *Journal* coûtait 2,50 \$ par année et une annonce classée de 50 mots 1,50 \$.
- Afin d'entraver le moins possible les vols durant les heures du jour, on commandait aux officiers dentaires de l'Aviation canadienne de travailler le soir.
- À Toronto, l'Académie de dentisterie tenait sa soirée annuelle pour les dames. Au dîner dansant, le président et M^{me} Edmund Guest accueillaient

quelque 300 membres en compagnie de leurs épouses et amies.

- Le Dr E. Wilford Fish, de Londres (Angleterre), recommandait de cautériser le sillon gingivo-dentaire jusque dans les poches avant une extraction afin de réduire le danger d'une endocardite lente.
- On louait un petit ouvrage sur la gestion du cabinet qui s'intitulait *Practice Building and Building for Practice* et dont l'auteur était M. E.E. Rogers, directeur de la Division occidentale de la société Ash Temple.
- Dans une lettre du Commissaire de l'Impôt sur le revenu adressée au Dr Don Gullett, secrétaire général de l'ADC, on pouvait lire :
« Il semble pertinent d'attirer votre attention sur une décision de cette Division qui s'applique aux années 1939 et suivantes, en vertu de laquelle les salaires des professionnels sont imposables en entier sans autres déductions que les dons aux œuvres de charité et à la patrie. » Δ

« QU'EST-CE? »

Aidez le Musée de l'ADC à identifier cet ancien objet

Fabriqués en acier lourd chromé, cet objet comprend deux parties qui s'ajustent ensemble. À quoi sert-il?

Si vous le savez, veuillez écrire au :
Dr Ralph Crawford, rédacteur en chef, Association dentaire canadienne, 1815 promenade Alta Vista, Ottawa, K1G 3Y6.



Québec 1991: Le point sur le congrès

Votre congrès, des semailles à la floraison !



Au moment même où, le 30 août 1990, tout le monde pliait bagage au terme du congrès d'Ottawa, l'organisation de celui de 1991, qui aura lieu à Québec, allait déjà bon train! « Vous y travaillez déjà? » s'enquirent plusieurs dentistes. La réponse ne pouvait être plus vraie : « Oui, nous y travaillons »; car, de fait, il faut plus d'un an pour mettre au point de telles assises.

Le site choisi, il faut visiter les lieux et, alors, commence une longue négociation. Le personnel du Service des congrès s'affaire à mettre au point avec soin les tarifs des chambres et les nombreuses modalités contractuelles qui permettront de répondre sur place à nos besoins et à ceux de tous les délégués. Trouver un logement de qualité à un prix convenable n'est pas une mince tâche; il faut de longues heures de négociations, offres et contre-offres, pour en venir à une entente.

Dès que s'arrête le moulin de la négociation, commence le fig-nolage de la communication. Le personnel des congrès entre alors en contact avec les nombreuses organisations dentaires qui se réuniront au cours du congrès et prend des dispositions spéciales pour répondre aux besoins de chaque groupe : salles de réunion à prévoir pour chacun, nombre de chambres et de suites.

Entre-temps, c'est avec toute l'attention voulue qu'on désigne les membres du comité du congrès, de façon à former une équipe dont l'harmonie en assurera l'efficacité. Ces personnes travailleront ensemble plusieurs mois pour relever divers défis et mettre au point les diverses activités scientifiques et sociales, les programmes des conjoints et des conjointes et ceux des enfants, ainsi que mettre en place l'importante organisation matérielle.

Par ailleurs, il faut revoir la liste des conférenciers et envoyer les invitations, puis amorcer la tâche de réunir les résumés, les photos, les notices biographiques et les formulaires d'« autorisation d'inscrire au compte rendu ». Dès que l'invitation est acceptée, il faut obtenir les renseignements nécessaires; et ici le temps joue contre nous, car alors la campagne publicitaire commence à prendre son élan.

Pendant que se fig-nole le programme des activités scientifiques, se développe la consultation avec les exposants et les commanditaires. Pour ce qui est des congrès de l'ADC, c'est à l'aube de la nouvelle année qu'il faut envoyer les premières circulaires aux plus de 800 exposants possibles non seulement sur le continent mais aussi, pour certains, outre-mer! Les ordinateurs se mettent à ronronner dès que les premières demandes commencent à rentrer, et bientôt le disque tourne à plein.

Ainsi, lentement, mais sûrement, le congrès commence à prendre forme; au fil des mois, on le modèle et on le façonne pour enfin

obtenir le produit final qu'on offrira aux délégués! Ces préparatifs, vous en trouvez les échos ici même, dans les pages bleues du Journal de l'ADC. L'information que nous offrons à nos évenutels délégués augmente au fur et à mesure que nous approchons du congrès; ainsi en est-il du Journal dont le volume épaissit.

C'est ordinairement au mois de mars que le congrès prend vraiment forme. À ce moment-là, paraissent les formulaires d'inscription et de réservation d'hôtel. Et alors, le rythme auquel doit travailler l'équipe pour mettre au point le spectacle devient de plus en plus exigeant.

À la période des inscriptions, le personnel augmente; il faut plus de gens pour s'occuper de la correspondance, veiller à ce que chaque délégué soit inscrit et envoyer les confirmations, sans oublier le programme et les billets. Entre-temps, d'autres membres de l'équipe mettent au point le programme préliminaire, principal outil de promotion du congrès.

Ceci fait, on se concentre alors sur la production du programme définitif. Il arrive aussi qu'on doive prévoir des expéditions en petites quantités pour certains groupes de délégués éventuels. C'est à ne jamais finir.

À l'approche du mois d'août, le rythme s'accélère. Il faut veiller aux menus besoins des cliniciens qui nous arrivent, vérifier par deux fois le cahier des personnalités, voir aux besoins en matière d'audio-visuel, prendre soin des exposants ... le rythme devient fou. Puis, en apercevant la figure épanouie des délégués qui nous sourient, nous aussi sourions en nous-mêmes, assurés d'avoir réussi avec brio une fois de plus! Avec un soupir de satisfaction, nous savons que les semailles du prochain congrès sont faites.

*Michel Jaliliah, D.D.S.
Président des congrès
de l'ADC*



QUÉBEC 1991

APERÇU PRÉLIMINAIRE DU PRÉ-CONGRÈS

GORDON J. CHRISTENSEN, DDS,
MSD, PhD
Provo, Utah



LE SAMEDI, 24 AOÛT

"Nouvelles perspectives en dentisterie-1991"

Ce programme a pour objet d'informer les dentistes des derniers développements pratiques dans les divers volets de la médecine dentaire. Il traite de problèmes très concrets qu'on rencontre couramment dans la pratique. En voici les principaux sujets:

- * restaurations des dents postérieures - incrustations en matériaux esthétiques et composites de classe 2 VS amalgames et obturations en or;
- * progrès en matière de prothèses fixes - nouveaux matériaux d'empreinte, précisions des données interocclusales et comparaison des nouveaux ciments;
- * restaurations préventives à la résine - utiliser la résine de classe 2 lorsqu'il y a indication de "scellant" pour une meilleure résistance à l'usure et une plus grande rétention;
- * nouvelles résines - choix des résines de restauration les plus acceptables au cabinet dentaire;
- * adhérence à la dentine - nouveau regard sur les produits courants dont on loue l'adhérence à la dentine;
- * bases et fonds protecteurs - comparaison entre les nombreux nouveaux types de bases, y compris le traditionnel ionomère de verre, la résine et l'ionomère de verre.

Il sera aussi question de plusieurs autres nouveaux produits ou procédés, évalués, récemment par Clinical Research Associates.

À propos du conférencier:

Le Dr Christensen est co-directeur fondateur, avec le Dr Rella P. Christensen, de Clinical Research Associate (CRA), société de recherche sur les matériaux dentaires, les méthodes, les appareils et les nouvelles notions en médecine dentaire, dont le bulletin, CRA Newsletter, est publié tous les mois depuis 1976.

Il détient un DDS de l'Université Southern California, un MSD de l'université de Washington et un PhD de l'université de Denver. Il fait actuellement de l'enseignement supérieur à plusieurs écoles dentaires et est professeur adjoint à l'université Brigham Young et chargé des travaux pratiques à l'Université de l'Utah.



TORSTEN JEMT, DDS, PhD
Gothenburg (Suède)

LE SAMEDI, 24 AOÛT ET LE DIMANCHE, 25 AOÛT

COURS À PARTICIPATION "Notions prosthodontiques de base en implantologie"

Ce cours a pour objet de renseigner les prosthodontistes et les généralistes sur les procédés prosthétiques relatifs au système Branemark.

Le conférencier traitera des points suivants:

- * Introduction et revue des problèmes cliniques et physiologiques associés à l'édentation totale ou partielle;
- * Présentation des traitements conventionnels et observations sur les autres systèmes d'implants;
- * Le fondement scientifique du système Branemark, ses aspects biologiques, bio-mécaniques et techniques;
- * Aperçu des protocoles chirurgicaux et présentation des aspects principaux de la chirurgie qui ont une incidence sur la réadaptation;
- * Les soins prothétiques: planification, choix du patient, indications et contre-indications;
- * Présentation en détail, sur le plan clinique et technique, de divers procédés prothétiques et emploi de divers matériaux;
- * Exercices pratiques, comprenant la présentation des éléments, des instruments et des diverses étapes du traitement clinique;
- * Présentation de patients aux diverses étapes du traitement et une fois le traitement terminé;
- * Possibilités de complication et soins appropriés;
- * Surveillance du patient et programme d'entretien, comprenant le recours à la radiographie et à l'informatique pour assurer le suivi à long terme.

À propos du conférencier:

Le docteur Jemt a obtenu son DDS en 1975 et s'est spécialisé en prosthodontie en 1982. Il présente sa thèse de PhD en 1984, à l'Université de Gothenburg (Suède). En 1988, il devient professeur agrégé en prosthodontie. Depuis 1986, il est directeur associé de la clinique Branemark. Le Dr Jemt a donné plus d'une centaine de conférences à des auditoires formés de professionnels et a publié une trentaine d'ouvrages scientifiques. Il poursuit des recherches sur le remplacement d'une dent unique.

QUÉBEC 1991

APERÇU PRÉLIMINAIRE DU PRÉ-CONGRÈS



IMTIAZ MANJI, BSc
Vancouver (C-B)

ET



TOM SNYDER, DMD, MBA
Cedar Knolls, New Jersey

LE SAMEDI, 24 AOÛT

LE DIMANCHE, 25 AOÛT

COURS À PARTICIPATION

"L'abc de la technologie de pointe"

Au début de la séance, chaque participant se trouve devant un ordinateur en pièces. Utilisant un langage simple et direct, M. Manji et Dr Snyder aide alors chacun et chacune à monter l'appareil.

Puis, une fois les ordinateurs montés et branchés, ils passent en revue les principaux programmes informatisés et les logiciels dont on se sert chez les dentistes. Les participants ont ainsi l'occasion de voir leur fonctionnement, allant des programmes MS-DOS et de Lotus 1-2-3 aux logiciels dentaires plus raffinés qui permettent d'enregistrer les dossiers des patients et d'effectuer la facturation des services. Cinq usagers expérimentés assistent les conférenciers de façon à répondre à toutes les questions.

"Bien gérer pour réussir financièrement"

Ce séminaire vous présentera les étapes à suivre pour gérer efficacement la croissance de votre cabinet dentaire et accéder personnellement à l'indépendance financière. Seule une stratégie de gestion financière et de planification de la pratique permettra de débloquer les richesses de la pratique et en faire des outils de croissance et de réussite.

Les participants découvriront les indicateurs de bonne santé de la pratique dentaire et apprendront comment réunir et analyser les données pour mesurer l'état de la pratique ainsi que comment se servir d'outils de planification tels que les tableaux et les modèles financiers pour faciliter la prise de décision. L'analyse mensuelle de la pratique en fera découvrir les possibilités de réussite en ce qui a trait au plan de retraite, à la rentabilité du cabinet dentaire, à sa valeur, au maintien du personnel, à l'achalandage et à la productivité. Par ailleurs, on vous indiquera des méthodes pour faire participer le personnel à la réussite du cabinet dentaire, soit par la participation aux profits, par une structure de boni et d'avantages marginaux.

À propos des conférenciers:

Président d'ExperDent Consultants Inc et fondateur d'Exan Technologies Inc, M Manji voyage beaucoup pour présenter aux dentistes du pays sa façon unique d'adapter les dernières applications de la technologie à la gestion du cabinet dentaire. Dans une rubrique trimestrielle intitulée "Practicing for Success", il explique comment son approche très terre-à-terre de la technologie a aidé nombre de dentistes à augmenter considérablement leur productivité et leur stabilité financière.

Le docteur Thomas Snyder est directeur des services professionnels de Sarantos & Company, firme de conseillers financiers et professionnels au service de la profession dentaire, qui a ses bureaux à Cedar Knolls (New Jersey). Diplômé de l'école de médecine dentaire de l'Université de la Pennsylvanie et de l'école d'administration Wharton, le Dr Snyder était partenaire senior de sa propre firme de gestion dentaire et de conseil en informatique avant de se joindre à la firme Sarantos & Company, Inc.

Québec 1991

Programme préliminaire du congrès

Le programme du congrès s'adresse à tous les professionnels des services dentaires, à savoir : dentistes, hygiénistes, assistant(e)s, personnel technique et administratif, ainsi qu'aux épouses et aux enfants. Certains cours intéresseront particulièrement certains groupes, mais plusieurs des cours s'adresseront à plus d'un groupe. À l'approche du congrès, nous signalerons les séances qui intéresseront particulièrement les divers membres de l'équipe dentaire.

LUNDI, 26 AOÛT

Edwin Yen, D.D.S.
Winnipeg (Manitoba)

- Conférence Grieve Memorial •
« L'avenir de l'orthodontie repose sur la biologie »

John Young, D.D.S., M.Sc.
San Antonio (Texas)
« L'éclairage et l'aménagement du cabinet dentaire »
« Facteurs ergonomiques de l'équipement dentaire et de l'asepsie du cabinet dentaire »

Kenneth Shay, D.D.S., M.S.
Milwaukee (Wisconsin)
« Guide de restauration de la dentition chez les personnes âgées »
« Les soins dentaires des personnes âgées : le dentiste en tant que membre de l'équipe des soins gériatriques »

Barbara Steinberg, D.D.S.
Pittsburgh (Pennsylvanie)
« Considérations d'ordre médical chez le patient féminin : de la puberté à la ménopause »

Philip Molloy, D.M.D.
Boston (Massachusetts)
« Premiers soins endodontiques »

Robert Samp, M.D.
Madison (Wisconsin)
« Vivre dans le stress, avec lui et malgré lui »

Dennis Smith, D.D.S., M.Sc., Ph.D., D.Sc., F.R.S.C.
Toronto (Ontario)
« Bio-matériaux et bio-compatibilité : perspective actuelle »

...et plus

MARDI, 27 AOÛT

Barbara Steinberg, D.D.S.
Pittsburgh (Pennsylvanie)
« Le traitement en équipe du patient dentaire ayant des problèmes de santé »

Philip Molloy, D.M.D.
Boston (Massachusetts)
« Nouvelles approches en chirurgie périapicale »

Joanne LaMantia, B.A.
Toronto (Ontario)
« L'informatique au cabinet dentaire »

Sol Silverman Jr., M.A., D.D.S.
San Francisco (Californie)
« Le point sur le sida et l'infection du VIH en dentisterie »

Charles Blair, D.D.S.
Charlotte (Caroline-du-Nord)
« Le contrôle des frais d'administration du cabinet »

Peter Guevara, D.M.D., F.A.C.D.
Pittsburgh (Pennsylvanie)
« Les matériaux photopolymérisables : comment en obtenir les meilleurs résultats possibles »

Dennis Smith, D.D.S., M.Sc., Ph.D., D.Sc., F.R.S.C.
Toronto (Ontario)
« Le point sur les liants et les ciments »

Robert Samp, M.D.
Madison (Wisconsin)
« Techniques de survie pour les gens d'aujourd'hui »

Marilyn Ciano, M.S.
Buffalo, New York
« Leadership et bénévolat : comment ça fonctionne »

Sebastian Ciano, D.D.S.
Buffalo, New York
« Pharmacologie : Traitement de la cavité buccale »
« Traitement des tissus périodontaires par moyens chimiques »

...et plus

Québec 1991

Programme préliminaire du congrès

MERCREDI, 28 AOÛT (MATIN SEULEMENT)

Sol Silverman Jr., M.A., D.D.S.

San Francisco (Californie)

« Le point sur le cancer buccal et les lésions précancéreuses »

Peter Guevara, D.M.D., F.A.C.D.

Pittsburgh (Pennsylvanie)

« Nouveaux matériaux et nouveaux procédés en prothèse pour le dentiste de famille »

Charles Blair, D.D.S.

Charlotte (Caroline-du-Nord)

« L'évolution de la pratique dentaire »

...et plus

PROGRAMME FRANÇAIS

Prosthodontie

Periodontie

Chirurgie

Couronnes et Ponts

Endodontie

Diagnostic et Radiologie

Dentisterie Opératoire

et plus...



Le funiculaire qui relie la terrasse Dufferin au quartier du Petit Champlain dans le Vieux-Québec.

Québec 1991

Conventum au congrès de l'ADC

L'occasion par excellence de renouer de vieilles amitiés

Le comité du congrès de l'ADC vous invite à tenir votre conventum à l'occasion des assises de 1991. Si cela vous intéresse de profiter de la circonstance pour réunir d'anciens collègues et amis, faites-nous savoir vos besoins en écrivant à l'adresse suivante :

Congrès de l'ADC
1815, chemin Alta Vista
Ottawa (Ont.)
K1G 3Y6

Pour vous renseigner par téléphone, composez le (613) 523-1770 et demandez le service des congrès.

Entretiens cliniques

Les entretiens cliniques sont des démonstrations ou présentations d'une durée de dix minutes, utilisant des aides visuels et répétés au cours d'une période de deux heures et demie.

Si vous êtes intéressé(e) à faire une présentation, veuillez vous adresser à :

Entretiens cliniques
Congrès de l'ADC
1815 promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6



ATTENTION! ÉTUDIANTS ET ÉTUDIANTES DE 4E ANNÉE DENTISTES DE LA PROMOTION DE 1990

Le Service des congrès veut que vous participiez aux assises de 1991!

Afin d'augmenter la participation des étudiants dentaires au congrès annuel de l'Association dentaire canadienne, c'est avec fierté que nous lançons le programme «Accueillez un étudiant dentaire». Après en avoir fait le tour, nous avons dressé une liste des dentistes de Québec qui sont prêts à accueillir des étudiants à l'occasion du congrès de l'ADC qui se tiendra dans cette ville du 24 au 28 août 1991. Cela signifie que vous serez logés sans frais tout en ayant une occasion unique de vous lier d'amitié avec les dentistes de «la belle province».

Renseignez-vous auprès du Service des congrès de l'ADC :
1-800-267-6364 (région de l'Est) ou 1-800-267-6354 (région de l'Ouest).

Vous pourrez vous procurer les formulaires d'inscription à votre Faculté.

Québec 1991

PROGRAMME DES CONJOINT(E)S

Le programme des conjoint(e)s pour le congrès de 1991 sera publié bientôt. Il comportera à coup sûr deux journées excitantes comportant la visite de certains points d'attrait et un déjeuner (les lundi et mardi 26 et 27 août).

Par ailleurs, vous aurez l'occasion d'entendre le Dr Robert Samp, professeur, éducateur et conférencier, qui vous entretiendra des techniques contemporaines de survie et dont la présentation du lundi après-midi portera sur la façon de vivre dans le stress, avec lui et malgré lui.

Le Dr Samp est reconnu pour sa facilité à «atteindre» son auditoire en transformant l'information scientifique de la médecine en suggestions utiles et salutaires. Il enrobe la réalité de bonbon sens et d'humour pour entretenir, éclairer, éveiller et mettre au défi son auditoire!

Programme des enfants

Deux journées d'émerveillement et de découvertes attendent les enfants qui s'inscriront au programme que leur réserve le congrès de 1991 de l'ADC.

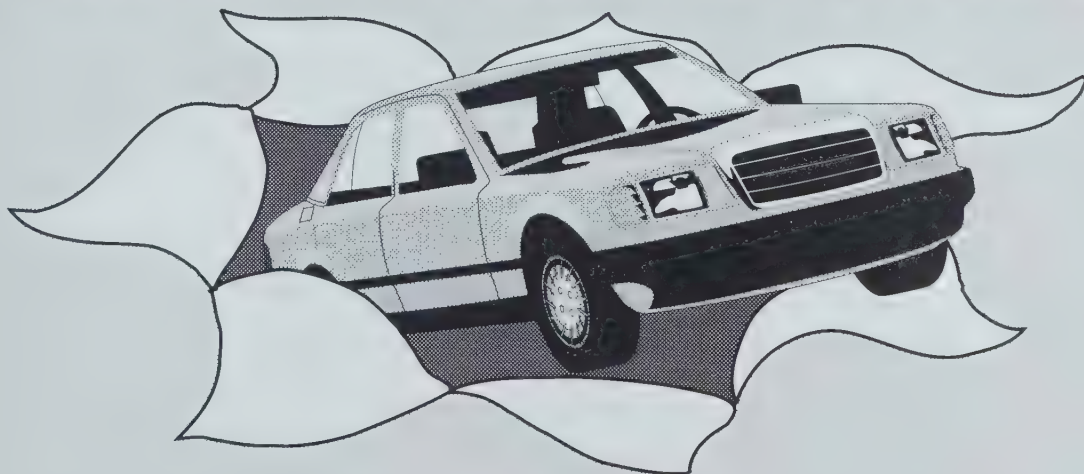
Le programme de deux jours, le lundi et le mardi 26 et 27 août, comportera des excursions et la visite des principaux points d'attrait de la région de Québec.

APPRENDRE EN S'AMUSANT, voilà qui marquera ces deux journées.

Surveillez les précisions dans les pages bleues du Journal de l'ADC!



Visitez le Salon d'Exposition 1991 et vous aurez la chance de GAGNER ...



Remerciements spéciaux à Aurum / Classic Dental Laboratories, qui a donné le Grand prix 1991 du Tirage des prix de présence de l'exposition de l'ADC.

CONGRÈS ANNUEL 1991 DE L'ASSOCIATION DENTAIRE CANADIENNE

24 - 28 août 1991 ■ Québec

Formulaire de réservation d'hôtel

Veillez cocher la catégorie qui vous concerne:

☐ Dentiste ☐ Hygiéniste ☐ Assistant(e) ☐ Exposant ☐ Personnel administratif ☐ Autre (spécifiez) _____

Nom: _____

Adresse: _____

Ville: _____ Province: _____ Code Postal: _____

Téléphone: () ()
(rés.) (bur.)

Type de chambre:

☐ simple ☐ double ☐ lits jumeaux ☐ Autre (spécifiez) _____

Prière d'indiquer trois hôtels au choix* (en numérotant les boîtes):

- ☐ Québec Hilton (Quartier général de l'ADC) \$ 130.00 simple / double
☐ Hôtel des Gouverneurs (Quartier général de l'ADC) \$ 115.00 simple / double
☐ Lowes le Concorde \$ 120.00 simple / double
☐ Château Frontenac \$ 140.00 simple / double

* Les prix n'incluent pas la TPS.

Date d'arrivée: _____

Date de départ: _____

Heure d'arrivée: _____

Pour faire votre réservation, vous devez garantir la première nuit à l'hôtel. Cette garantie s'applique à la première nuit SEULEMENT. Si vous désirez annuler votre réservation, veuillez en prévenir l'ADC au moins trois jours avant la date prévue pour votre arrivée.

☐ MasterCard ☐ American Express ☐ VISA

N° de carte: _____

Date d'expiration: _____

Signature: _____

Veillez faire parvenir le formulaire de réservation à l'adresse suivante:

Congrès de l'ADC
Association dentaire canadienne
1815, promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6

DATE LIMITE pour réserver: le 10 juillet 1991

CONGRÈS DE L'ASSOCIATION DENTAIRE CANADIENNE

Québec ■ du 24 au 28 août 1991

FORMULAIRE DE PRÉ-INSCRIPTION (écrire en lettres MOULÉES)

Le système d'inscription étant informatisé, on ne peut inscrire qu'une seule personne par formulaire et, pour en tirer pleinement avantage, il faut s'inscrire tôt. Nous acceptons donc les inscriptions hâtives jusqu'au 10 juillet 1991, après quoi les formulaires seront renvoyés à l'expéditeur. Il en coûtera 27 \$ en frais d'administration pour s'inscrire sur place (TPS inclus).

Nom _____ Prénom _____ Sexe : M F

Adresse (rue) _____ (ville) _____ (province) _____

(code postal) _____ Téléphone : () _____ () _____ (résidence) _____ (bureau) _____

No de membre de l'ADC _____ No du permis d'exercer _____

PRE-CONGRÈS ■ les 24 et 25 août ■ Séances réservées (*en anglais)

SAMEDI 24 AOÛT

Gordon Christensen, D.D.S., M.S., Ph.D.* - RESTAURATIONS - Conférence

Dentistes \$ 160.00
Personnel \$ 70.00

Intiaz Manji, B.Sc. et Tom Snyder, D.M.D., M.B.A.* - LES ORDINATEURS -

Cours à participation
Dentistes \$ 250.00
Personnel \$ 250.00

DIMANCHE 25 AOÛT

Intiaz Manji, B.Sc. et Tom Snyder, D.M.D., M.B.A.* - GESTION DU CABINET DENTAIRE -

Conférence
Dentistes \$ 160.00
Personnel \$ 70.00

Torsten Jemt, D.D.S., Ph.D.* - IMPLANTS - Cours théorique et pratique

• COURS DE DEUX JOURS, SAMEDI ET DIMANCHE •
Dentistes \$ 350.00

* La TPS n'est pas perçue sur les cours pré-congrès

CONGRÈS ■ les 26, 27 et 28 août

DENTISTE

Membre de l'ADC \$ Nil
Non-membre, Autres (la TPS de 7% inclus) \$ 155.00

Inclus: Programmes scientifiques, exposition technique

ASSISTANT(E) DENTAIRE

Membre de l'ACHD (la TPS de 7% inclus) \$ 70.00
Non-membre (la TPS de 7% inclus) \$ 102.00

Inclus: Programmes scientifiques, exposition technique

ASSISTANT(E) DENTAIRE

Membre de l'ACHD (la TPS de 7% inclus) \$ 70.00
Non-membre (la TPS de 7% inclus) \$ 102.00

Inclus: Programmes scientifiques, exposition technique

☐ PERSONNEL ADMINISTRATIF (la TPS de 7% inclus) \$ 70.00

Inclus: Programmes scientifiques, exposition technique

☐ TECHNICIEN(NE) (la TPS de 7% inclus) \$ 70.00

Inclus: Programmes scientifiques, exposition technique

☐ ETUDIANT(E) ☐ Dentiste ☐ Hygiéniste ☐ Assistant(e) \$ Nil

Inclus: Programmes scientifiques, exposition technique

☐ CONJOINT(E) (la TPS de 7% inclus) \$ 102.00

Inclus: Programmes scientifiques, exposition technique et activités des conjoints

☐ ENFANT (la TPS de 7% inclus) \$ 65.00

Inclus: Accès au congrès et aux activités des enfants

No de la TPS : R016845209

ACTIVITÉS SOCIALES

Dimanche - Cérémonie d'ouverture -

☐ Oui ☐ Non \$ Nil

Lundi - Soirée de gala du président (par personne)

(la TPS de 7% inclus) \$ 60.00

Mardi - Soirée de rencontre

☐ Oui ☐ Non \$ Nil

FUN RUN

Lundi (matin) (la TPS de 7% inclus) \$ 16.00

TOTAL \$

Les frais d'inscription sont payés par

☐ Veuillez porter à mon compte de carte de crédit: ☐ MasterCard ☐ VISA ☐ AmEx

No de carte: _____ Date d'expiration: _____

Signature: _____

☐ Je préfère acquitter le tout par chèque à l'ordre de l'Association dentaire canadienne.

Prière de ne pas faire de chèques postdatés.

Annulation

- Annulations par écrit reçues avant le 10 juillet 1991 - Remboursement entier
- Annulations par écrit reçues après le 10 juillet 1991 - Frais d'administration de 25 %
- Annulations après le 9 août 1991 - Aucun remboursement

Adresser le formulaire et le paiement à

Congrès 1991 de l'ADC
1815, promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6

Les dentistes, les assistants, les hygiénistes, le personnel administratif et les techniciens qui s'inscrivent avant le 10 juillet 1991 participent automatiquement au tirage de deux billets d'avion pour toute destination d'Air Canada en Europe ou en Amérique du Nord!

Québec 1991

Québec, une perpétuelle découverte !

Demandez-le à ceux et à celles qui l'ont visitée et on vous répondra presque toujours que la région de Québec a un caractère unique. Cette année, en participant au congrès annuel de l'Association dentaire canadienne, les dentistes de tous les coins du pays auront l'occasion de voir par eux-mêmes ce qui lui donne ce caractère particulier et ce qui distingue d'ailleurs la société québécoise.

Visitez le Québec en août et couronnez votre voyage en passant quelques jours dans la Vieille-Capitale, un coin de pays qu'on ne finit pas de découvrir. Profitez également du congrès pour parfaire vos connaissances professionnelles.

La ville de Québec compte beaucoup de musées et de galeries d'art qui n'attendent que votre visite. Le présent article décrit certaines des nombreuses institutions et organisations qui révèlent le véritable sens de la culture québécoise.

Musée de la Civilisation

85, rue Dalhousie, face au Vieux-Port. Institution nationale, culturelle et éducative, logée dans un bâtiment de 20 000 m², qui a pour vocation de faire connaître l'histoire du Québec, d'établir un rapport critique avec notre culture et de comparer avec d'autres manières de faire par une variété de formules retenues à travers le monde. L'activité du musée est centrée sur la personne, les conquêtes de l'intelligence, et la puissance de l'adaptation de l'être humain.

Galerie du Musée du Québec

24, boulevard Champlain, près de place Royale. Une fenêtre ouverte sur l'art actuel.

Chapelle Historique Bon-Pasteur

1080, de la Chevrotière, face au Complexe G. Rénovée en 1985 par le ministère des Affaires culturelles et dirigée par l'organisme Fide-Art.

Messe musicale des artistes le dimanche à 10h45. Invitation aux artistes et à tout le milieu artistique.

Galerie Anima "G"

1037, rue de la Chevrotière. Située au 31^e étage de l'édifice G, le ministère des Communications y présente tout au long de l'année des expositions de nombreux artistes. Son observatoire panoramique permet d'admirer le paysage de Québec sous un angle saisissant.

Musée Historique

22, rue Sainte-Anne. Situé dans l'une des plus anciennes maisons de Québec (1640), le musée comprend 15 scènes en cire regroupant plus de 80 personnages animés, grandeur nature, illustrant quelques-uns des mouvements les plus importants de notre histoire.

Literary & Historical Society of Quebec

Société savante fondée en 1824. L'imposante bibliothèque englobe celle fondée par Haldeman en 1779 et celle de l'ancienne

"Quebec Library Association" fondée en 1845. Logée dans l'historique Morin College, 44 rue St-Stanislas, site de la première prison d'Amérique du Nord, la bibliothèque comprend une très belle collection d'auteurs canadiens.

La Maison Hamel-Bruneau

Située à l'extrémité de l'allée en forme de coeur qui mène au 2608, chemin Saint-Louis. Ce manoir du XIX^e siècle de style anglais et son jardin ont été restaurés et convertis en centre culturel par la ville de Sainte-Foy. Des conférences et des démonstrations se tiennent dans le salon double qui sert aussi de galerie d'art.

Centre Muséographique de l'Université Laval

Pavillon Louis-Jacques-Casault, porte 3545. Ouvert au public depuis 1986. Seul musée québécois à présenter un ensemble d'expositions permanentes dont le but est essentiellement pédagogique et scientifique, et plus spécialement en sciences de la nature. Les quatre volets de sa thématique couvrent successivement l'Univers, la Terre, la Vie et l'Homme.

Nos remerciements à l'éditeur de Voilà Québec, guide touristique officiel de l'Association des hôteliers de la région de Québec, qui a fourni la documentation nécessaire à la rédaction du présent article.



La porte St-Louis, dans la Vieille-Québec, ouverture sur une culture fascinante.

Recent CDA Poll Yields Good News Overall

A 1990 survey of Canadians conducted on behalf of the Canadian Dental Association showed that while more people are visiting the dentist at least annually, just over half still believe that tooth decay is the leading cause of dental disease. These and other findings are part of the CDA Dental Awareness Program's ongoing efforts to monitor and track Canadians' dental health behaviours and attitudes. Since they began in 1985, these surveys have yielded interesting, promising, and sometimes surprising results. And this survey is no exception.

Visiting the Dentist: Frequency is up. . . again

More Canadians are visiting the dentist more often. 68% of them visit the dentist once a year or more, up from 65% in 1988 and 60% in 1985. More people visit the dentist once a year or more in Ontario (77%), less in the Atlantic provinces (62%). Although it used to be that more women visited regularly, now men are drawing even: 70% of women and 68% of men visit at least once a year. Younger people (age 15-29) are more likely to visit at least annually than all other age groups.

Dental Insurance: The strongest link

Among all the demographic factors this survey investigated, the presence of dental insurance was the one most strongly linked with frequency of dental visit. Of those who have dental insurance, 81% visit once a year or more. Of those who do not, 55% visit once a year or more.

Change in Visit Frequency: About one-quarter visiting less often

Just over half (58%) of Canadians who visit the dentist are visiting as often as they always have. About sixteen percent are visiting more often. But a full 27% report that they are visiting less often than they always have. This is most noticeable in Québec and in British Columbia outside Vancouver. Ironically, in the Atlantic provinces a large number of people are visiting more often (21%) and another large number are visiting less often (29%).

Perception of Tooth Decay: Room for improvement

Canadians were asked if they agreed or disagreed with the statement "Tooth decay is the leading dental disease for people your age". A total of 52% of Canadians still believe this statement to be true. While fewer people agree with this statement now than did in 1988 or 1985, there's still room for improvement. People's perception of tooth decay is *not* strongly linked to dental visits, however, 57% of people who visit more than once every six months believe that tooth decay is the leading dental disease. And 55% of those who *never* visit the dentist hold this same belief.

Perception of Pain: Continuing a positive trend

Canadians were asked if they agreed or disagreed with the statement "When I think of going to the dentist, I think of

pain". Overall, 58% of people disagreed with this statement, continuing the positive trend established in 1988 and 1985. In this instance there is a positive correlation between visiting the dentist and disagreeing with the statement: 67% of those who visit about once every six months do not think of pain when they think of visiting, compared to only 45% of those who never visit the dentist.

Frequency of brushing: Women are more diligent

In total, 98% of Canadians who have teeth reported brushing at least once a day. However, people are likely to over-report brushing because they know it's something they ought to do. 76% of Canadians brush twice a day, compared to 71% in 1988 and 69% in 1985. Women tend to be more diligent about brushing than men: 87% of women brush at least twice a day, compared to 63% of men.

Dental Insurance: Incidence varies considerably

About half (51%) of Canadians report having some form of dental insurance, but the rate varies across the country. The incidence of insurance is highest in Ontario at 66%, and lowest in Québec at 37%. People who live in large communities (100,000 to one million population) are most likely to have dental insurance. People in their working years (25-54) are more likely to have insurance than those age 55 and over. Only 16% of those age 65 and over have dental insurance.

Implications

This survey was the third in a series of regular efforts by the CDA to assess the dental attitudes and behaviours of Canadians. This poll has yielded good news overall: more people are visiting more often, and attitudes to tooth decay and pain are shifting slowly but surely. But there is still significant work to be done. Millions of Canadians could be visiting the dentist more often, and millions more are still unaware of the seriousness of gum disease. A significant number of people are visiting the dentist less often than they always have. These are all reasons for concern.

The CDA's Dental Awareness Program is one way dentists can help Canadians change their dental attitudes and behaviours. The CDA offers a wide variety of materials that make it easy for the professional and patient to communicate effectively about dental health and regular preventive care. For more information, phone the CDA toll-free and ask for a catalogue.

The CDA has used the services of the Canada Health Monitor to obtain the results of this survey. The Monitor is a twice-yearly telephone poll of 2,200 randomly selected Canadians age 15 and over. The Monitor focuses exclusively on the areas of personal health, health care, and current health issues. Results for this sample of the nation as a whole are reliable within $\pm 2.09\%$.



DAP Advisor Helpful to Dental Assistants

I enjoy reading the *DAP Advisor* monthly column. Although the articles are written for dentists, I feel many dental assistants, as part of the dental team, could profit from reading the material. These topics are vital to a successful practice.

I would appreciate permission to reprint the articles in other journals on the provincial or national level for dental assistants' education.

Dorothea Lorenz
CDA Executive
Toronto Affiliate

Editor's note: we are pleased readers find the *DAP Advisor* interesting. Permission is certainly granted – spread the good news.



Human Values

On picking up the December, 1990 issue of the *Journal*, I paused to read Dr. Dubé's column titled "A Celebration of Human Values". I was so impressed that I put down the *Journal* and addressed this note to express my appreciation for the very valuable thoughts expressed to the profession on human values. How very necessary it is to treat each patient as a unique individual. As Dr. Dubé said, to accomplish this, we have to slow down a bit in order to communicate and get to know them.

Norman K. Wood, Dean
Faculty of Dentistry
University of Alberta



Dental Fees

I have always enjoyed your editorials. They are not only interesting but timely and colourfully written. I have a suggestion for a topic that you might consider addressing.

I recently took my wife to a local dentist whom I both like and respect. His hygienist did a prophy for her and I just received the statement. It was itemized as follows: prophylaxis – \$31, scaling per unit \$23, resulting in a total bill for \$54. Time consumed was half an hour.

I know that the fees charged are according to the fee guide but I am of the old school and feel that a prophy consists of supragingival scaling and polishing. Why the difference? I also remember when the fee for a prophy was \$5-10 and was performed by the dentist, not the hygienist.

The main point I would like to stress is that if the dental profession is looking for good P.R., it certainly won't achieve it by charging \$54 for a cleaning. For a family of four, fees for cleaning are in excess of \$200 at these rates, without restorations or x-rays. Will fees of this type encourage the public to visit their dentist regularly?

Isadore Wolch, DDS
Winnipeg, Manitoba

Editor's Note: Dr. Wolch, a 1932 graduate of the University of Alberta, now retired, has raised a question that is often asked by patients phoning the CDA. He would like to know other's opinions on the subject of prophylaxis fees.

The Journal invites reader's comments and will publish them as received.

Si vous désirez faire part de vos commentaires et opinions, veuillez les adresser au rédacteur en chef. La rédaction se réserve le droit de les réviser.

Régime d'épargne-retraite de l'ADC

Valeurs respectives (révisées chaque semaine)

Fonds

	Valeurs respectives au	
	31 janvier 1991	31 décembre 1990
Fonds d'obligations et d'hypothèques	79,68076	77,86192
Fonds d'action ordinaire	15,83020	15,75389
Fonds garanti	54,49298	53,87087
Fonds équilibré	30,70854	30,09098

Fonds de placement garantis

Durée

	Taux d'intérêt au*	
	31 janvier 1991	31 décembre 1990
1 an	10,30%	10,85%
2 ans	10,30%	10,55%
3 ans	10,30%	10,55%
4 ans	10,35%	10,60%
5 ans	10,30%	10,55%

(*Sous réserve de changement sans avis.)

Avoir global (valeur marchande) du régime au

30 septembre 1990	31 décembre 1990
130 845 642.30\$	127 606 287.30\$

Pour de plus amples renseignements:



veuillez écrire à:

CDSPI

Retirement Services Dept.

Suite 600

2 Lansing Square

Willowdale, Ontario M2J 4Z3

ou téléphoner:

l'Ouest, les Maritimes et
l'Ontario où le code régional
est 807 1-800-268-5418
le Québec et l'Ontario,
sauf où le code régional
est 807 1-800-268-3411
la région métropolitaine de
Toronto 497-7117



le 3 janvier 1991

Dr Gilles Dubé
président
L'Association dentaire canadienne
1815, promenade Alta Vista
Ottawa, Ontario
K1G 3Y6

Docteur,

Au cours des derniers jours, j'ai reçu plusieurs bons commentaires touchant l'ADC; il me fait plaisir de vous en faire part.

À l'Association dentaire de l'Ontario, les membres du Conseil d'administration et du personnel apprécient beaucoup les efforts qu'a faits l'ADC pour fournir en temps opportun des informations complètes et des conseils sur la TPS et l'amalgame d'argent. L'avis-tissement que vous nous avez donné en prévision de l'émission 60 Minutes a été très utile; il nous a permis de nous préparer à répondre aux nombreuses demandes de renseignements que nous avons reçues.

Il est vrai qu'un bon nombre de nos membres nous ont téléphoné pour se plaindre de n'avoir pas reçu ces informations. Notre personnel leur a fait remarquer que l'ADO et l'ADC cherchent toujours à travailler de concert et que, suivant le domaine de compétence ou la nature des informations à communiquer, c'est l'un ou l'autre organisme qui a la prépondérance. Quand un dentiste n'obtient pas des informations qui lui seraient précieuses, c'est probablement parce qu'il ne fait pas partie de l'une des deux associations.

Veuillez transmettre nos compliments à vos cadres et à votre personnel pour les remarquables services rendus.

Recevez nos salutations.

William G. Leggett, D.D.S.
président



4 NEW STREET
TORONTO, ONTARIO M5R 1P6
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Que fait l'ADC pour la profession dentaire?

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- publication de comptes rendus, de rapports et d'orientations
- encouragement de la formation continue au sein de la profession dentaire
- administration d'un programme de reconnaissance des produits dentaires et délivrance du « sceau de reconnaissance de l'ADC »
- publication d'un journal mensuel
- sensibilisation de la population par le truchement du Programme de sensibilisation à la santé dentaire et de la campagne du Mois de la santé dentaire
- production de matériel éducatif à l'intention des patients
- surveillance du développement des matériaux et des appareils dentaires ainsi que des soins de santé buccale
- évaluation de l'emballage, de la publicité et de la promotion des produits dentaires et de la recherche menée par les fabricants
- organisation du congrès annuel (gratuit pour les membres) qui comprend des activités scientifiques et sociales, des présentations et une exposition
- recommandation de normes de déontologie et encouragement de l'intégrité professionnelle par son Code d'éthique
- représentation de la profession en ce qui a trait aux politiques et aux programmes du gouvernement
- agrément des services dentaires des hôpitaux et des institutions qui répondent aux normes du pays
- négociation des polices d'assurance et des régimes d'épargne-retraite pour les membres
- agrément des programmes de formation dentaire qui répondent aux normes du pays
- administration de la bibliothèque Sydney Wood Bradley, centre de documentation et d'information de la profession situé au siège social de l'ADC
- développe des standards professionnels afin de faciliter la pratique courante



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Le Conseiller en SSD

Le Conseiller en SSD offre des informations, des idées et des conseils pour améliorer les communications entre le dentiste et ses patients, sensibiliser les gens aux avantages de leur santé dentaire et aider les cabinets à recruter plus de patients.

Publié régulièrement, un bulletin peut être un puissant moyen de communication pour établir des liens plus étroits entre votre cabinet et vos patients.

Comment rédiger un bulletin qui accroche

Comme on l'a vu le mois dernier, les communications écrites — que ce soient des cartes d'anniversaire, des lettres de remerciement ou d'autres billets — peuvent être d'une valeur inestimable pour cimenter vos liens avec les patients. À ces moyens de communication, vous pouvez en joindre un autre qui pourra se révéler tout aussi irrésistible : le bulletin.

Comme les autres moyens de communication écrite, le bulletin vous permet d'étendre votre portée hors du cabinet pour atteindre vos patients chez eux et faire leur éducation. En lisant votre bulletin, ceux-ci pourront apprendre des choses essentielles sur la santé dentaire et sur la façon de la conserver. En outre, ils sauront que les rapports qu'ils ont avec vous ne se limitent pas aux visites qu'ils vous rendent. Aussi seront-ils satisfaits de vous avoir pour dentiste et, par conséquent, seront-ils portés davantage à vous revoir et à vous recommander à leurs parents, amis et connaissances en leur vantant vos services et même en leur passant votre bulletin.

Un bulletin peut aussi être un moyen de favoriser l'union parmi les membres de votre équipe et de les inciter à la loyauté. Publié régulièrement — une, deux, trois, quatre fois par année ou plus —, il peut servir à rallier leurs efforts. En travaillant ensemble, vous pouvez tous, comme équipe, créer une publication qui représentera vraiment votre cabinet et dont vous pourrez tous être fiers.

À première vue, publier un bulletin peut sembler une tâche difficile. En effet, vous et les membres de votre personnel n'êtes pas des écrivains professionnels, et l'idée de communiquer régulièrement par écrit avec vos patients peut, du moins au début, vous effrayer quelque peu. Toutefois, écrire, il faut bien le comprendre, revient simplement à ordonner vos idées sur papier; si vous pouvez les exprimer clairement par la parole, il vous sera tout aussi facile, avec assez de pratique et d'occasions, de les exposer par écrit. Bien que vous ne soyez pas, vous et les membres de votre équipe, des écrivains professionnels, vous êtes bel et bien des communicateurs professionnels : tous les jours, l'exercice de votre profession exige que vous communiquiez avec vos patients.

Bien entendu, certains ont une meilleure plume que d'autres. De fait, il se trouve probablement quelqu'un dans votre équipe qui a de la facilité avec les mots. C'est le candidat idéal pour agir comme rédacteur de votre bulletin. Pour l'aider — et vous tous aussi — à démarrer ou pour améliorer votre bulletin si vous en avez déjà un, voici quelques suggestions :

• Soignez votre présentation

Votre bulletin représente concrètement votre cabinet. Il convient donc de l'imprimer sur du bon papier, dans une couleur qui repose l'œil et avec des caractères faciles à lire. La mise en page peut être simple, mais elle doit être polie et paraître professionnelle puisque c'est l'impression que vous voulez donner de votre cabinet.

• Choisissez un thème

Votre bulletin sera plus cohérent — et pourra se préparer plus facilement — si vous rédigez chaque numéro en fonction d'un thème. Les thèmes peuvent varier des mesures préventives aux traitements de canal et à la dentisterie esthétique. De fait, tout sujet pour lequel vos patients ont pu exprimer de l'intérêt durant leurs visites ou qu'ils pourraient, à votre avis, trouver instructifs peut servir de thème. En tant que chef de votre équipe, c'est à vous qu'il revient de rédiger l'article de tête, celui qui présente le thème et donne le ton général du contenu. Les autres membres de votre équipe peuvent ensuite écrire des articles qui approfondissent certains aspects du thème.

• Écrivez pour le patient

Les patients ne comprendront probablement pas les articles qui seront écrits du point de vue de la profession ou dans son jargon. Rédigez donc vos articles en ayant à l'esprit le point de vue du patient et adoptez un style simple dépouillé de tout jargon dentaire. (Vous trouverez d'autres conseils sur le style dans la chronique du mois dernier.)

• Tenez compte du temps de publication

Quel que soit le nombre de numéros que vous publiez, vous devez vous assurer que chacun contiennent des articles qui tiennent compte du temps de l'année où il paraît. De cette façon, votre bulletin paraîtra actuel et son contenu tout neuf. Assurez-vous bien cependant que les numéros paraîtront à temps. Si celui du printemps sort l'été, votre clientèle pourra penser que votre cabinet ne sait guère s'organiser et manque d'efficacité. L'effet sera tout à fait contraire à celui que vous recherchez.

• Faites participer les patients

Pour les patients, votre bulletin sera plus intéressant s'ils y ont une place pour s'exprimer. Vous pouvez leur demander de vous soumettre des questions, des commentaires ou des articles. De cette façon, le bulletin ne sera pas seulement un moyen de communication à sens unique. Les patients sauront qu'ils peuvent délibérément et régulièrement y contribuer et, partant, seront-ils sans doute plus enclins à vous rester loyaux.

• Constituez une banque d'articles

Si vous publiez votre bulletin régulièrement, il vous faudra beaucoup de matériel en réserve. Pour vous assurer que vous n'en manquerez pas, montez-vous une banque d'articles à publier en en découpant dans des journaux, des magazines et même dans les bulletins des autres cabinets. Certes, à moins d'obtenir les autorisations nécessaires, vous ne pourrez pas les reproduire tels quels, mais ils pourront vous en inspirer de votre cru.



Le Conseiller en SSD est un service du Programme de sensibilisation à la santé dentaire, une campagne continue qui vise à aider tous les Canadiens à faire de la santé dentaire une richesse pour la vie.

Composite Resins

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ADVANCED CARDIAC LIFE SUPPORT (ACLS) CERTIFICATION PREPARATION AND A COMPREHENSIVE REVIEW

K. Grauer
D. Cavallaro

2nd Edition, 1987, The C.V. Mosby Co., Toronto

The Advanced Cardiac Life Support (ACLS) program is an important component of dental residency programs in many hospitals as well as a requirement prior to graduation from most specialties in Oral and Maxillofacial Surgery and Anaesthesia. This text has been written to both supplement and complement the standard text for the ACLS course provided by the American Heart Association and the Heart and Stroke Foundation.

Because the participant in an ACLS course is expected to assimilate a large amount of material in a relatively short period of time, this book attempts to further prepare the student for the intensive course to follow.

This soft-covered book resembles the standard ACLS text, though slightly smaller in dimension. It contains 466 pages of text and 477 illustrations. The book is divided into seven major parts, containing a total of 18 chapters. The text is referenced directly with an extensive bibliography following each chapter. Each chapter is well-illustrated with photographs, line drawings and/or algorithms.

The first four major sections are of prime interest and are titled The Essentials of Running a Code, Essentials of the Airway and IV Access, Pitfalls in the Management of Cardiac Arrest, and finally, Topics of General Interest in Emergency Cardiac Care. This book excels in its approach to arrhythmia interpretation and management of simulated cardiac arrest sequences. By being repetitive but not overly so, this book emphasizes the important aspects of handling emergency situations, and in particular, focusses on the essential for preparation for ACLS certification.

The suggested protocols — frequently illustrated by algorithms — are complete with a step-by-step analysis of each recommendation, highlighting points of interest and importance. The text is surprisingly comprehensive and up-to-date.

Reader participation is ensured by the logical format of this book and by the self-assessment exercises and case studies

presented. The clinical relevance of each intervention is stressed and all steps are thoroughly explained in logical sequence.

The recommendations in this book are uniformly consistent with those of the American Heart Association. In cases where these are not strictly adhered to by the authors, a clear statement of their rationale is put forward.

The latter chapters of the book cover pediatric resuscitation, medicolegal issues, as well as a major section titled Beyond the Basics for the serious reader.

This is a reader-friendly up-to-date book which is extremely informative and stimulating. It provides factual knowledge and rationale and ample practice for the practitioner preparing for the ACLS course or just reviewing the ACLS protocols. While initially intended as a study guide, it can truly be called a comprehensive reference text with the content reflecting current practice and the latest knowledge on the subject.

Reviewed by:

Earle R. Young, BSc, DDS, BScD, MSc, FADSA

*Assistant Professor of Anaesthesia,
Faculty of Dentistry, University of Toronto
and the Wellesley Hospital, Toronto.*

INTERNAL MEDICINE FOR DENTISTRY

Louis F. Rose and Donald Kaye

*1990, The C.V. Mosby Company,
St. Louis, 1159 Pages.*

This book is one of the classic textbooks of dental education. It is an honour to be asked to review its second edition. The book is written for both dental students and practicing dentists in all areas of specialization. It is truly a reference text illustrating the highly complex areas of internal medicine and it is designed specifically for dentists.

The preface succinctly states the need for such a book: "Dental education has been remiss in adequately preparing the dentist to evaluate the general health status of a patient. Today, more than ever before, when one considers the revolutionary advances that are occurring in medicine and the fact that a rapidly growing segment of the population consists of geriatric and medically compromised patients, the importance of medicine and its relationship to dental practice becomes clear."

A comprehensive textbook such as this one could not have been written by a single author. The two primary authors are highly respected in the fields of internal

medicine, oral medicine and both medical and dental education. Under the guidance of Rose and Kaye, the impressive array of 14 section editors and the highly diverse and qualified 189 contributing medical and dental specialists have woven their writings into a cohesive, unified and easy to follow text. The many hours required to put such a text together is testament to the expertise of Rose and Kaye.

The book is categorized using the familiar systems approach which is both logical and pertinent to the field of internal medicine. This is achieved by dividing the book into 15 sections. The reader is taken from an Approach to Evaluation of the Patient through the Rheumatic and Granulomatous Diseases. A strong section on Microbiological Diseases is followed by Hematologic Diseases and Neoplastic Diseases. Each of the organ systems are discussed individually. The final sections include Endocrinology and Genetics and Metabolism.

Each section is organized into a logical series of topics. Topics are discussed in a succinct manner with a bibliography of key references that conveniently follows the pertinent text. Throughout the book, where appropriate, the authors specifically highlight the dental correlations of each topic. This is the "Raison d'Être" for the book. The dental correlations under the topics of renal disease and endocrinology are particularly noteworthy.

The first edition of this textbook was published in 1983. Seven years later, the changes in the second edition include an update in cardiology, discussions on modern techniques of angioplasty, contemporary treatment of gastrointestinal and urologic infections, coverage of AIDS and currently topical subjects such as Lyme Disease.

The book's only weakness appears in its first section. Although this is not a comprehensive text in history taking or physical diagnosis, these are the cornerstones of not only internal medicine, but of all medicine. This section needs to be expanded.

At 1159 pages, the book does justice to the immense topic that it covers. In comparison to one of the true "gold standards" used in North American medical education, *Harrison's Principles of Internal Medicine*, Rose and Kaye's book is succinct; 1159 pages compared to 2212 pages. Moreover, it is written specifically with dental correlations and it is printed on paper of better quality with a readable font and style. Although both

books are fine reference texts suitable for every dental library, dentists and dental students will likely find Rose and Kaye more manageable.

Reviewed by:

George K.B. Sandor, MD, DDS, FRCDC
Oral and Maxillofacial Surgeon,
Senior Resident in Division of Plastic Surgery,
University of Toronto.

PERIODONTOLOGY AND PERIODONTICS: MODERN THEORY AND PRACTICE

By Sigurd Ramfjord and
Major M. Ash

1989, Ishiyaku EuroAmerica, Inc., St. Louis
370 Pages. ISBN 0-912791-40-3

This book is a revision of the textbook *Periodontology and Periodontics* published by the same authors in 1979. The new volume is slimmer and elegantly produced; the paper is of high quality and the print, although smaller, is better arranged and easier to read. The chapters are subdivided into clearly marked sections and summaries are provided for each major topic.

The organization and text are virtually identical to the 1979 edition. The subjects are covered logically and comprehensively in clear, well-written English, and the historical development of periodontics is well represented. The 29 chapters progress through anatomy and physiology, etiology and pathogenesis of periodontal diseases, classification and epidemiology. Separate chapters are devoted to examination, treatment planning, prognosis, maintenance, and to each of the major treatment modalities. The section on occlusion is thorough, as one would expect from the authors of the classic *Occlusion* text. The reference lists are abbreviated from the 1979 book but are still quite extensive. A few recent references have been added.

The chief drawback of this book is that it is dated. The illustrations and photographs, although well chosen, are in black and white, and have been reproduced almost exclusively from older sources. There are only three pages of colour photographs of variable and disappointing quality. The new sections of text which have been added (for example, on microbiology and AIDS), are not well-written and show signs of interpolation. The authors persist in using old-fashioned terms such as "roentgenogram", "periodontal membrane", and "simple" or "complex" periodontitis. The technical

descriptions of surgical procedures could have been improved by including more illustrations; however, the text favourably gives consistent reference to scientific rationale. Newer treatments such as guided tissue regeneration are mentioned but not described. Osseointegration and implantation have been omitted entirely.

The book has a few embarrassing slips: some of the "roentgenograms" in Chapter 11 have been inverted in their transfer from the 1979 edition; in the caption for figure 11-27, the authors mean "decreased" instead of "increased"; the posterior radiographs in figure 13-5 have been reversed; and the use of "PI Index" to mean "plaque index" is irritating.

It is difficult to predict if this book will find a significant market. It is not significantly more advanced than the 1979 edition. The authors state that their aim was to provide a book for broad readership including patients, students, hygienists, periodontists, and insurance carriers. For the serious student of periodontics, this book does not compete well with more current and detailed books which are available. It is far too complex and comprehensive for any but the most fanatical layperson. Insurance carriers are much more likely to refer to the brief and specific *AAP Glossary of Periodontic terms*. The hygienist or dentist interested in technical details will prefer one of the better illustrated colour atlases of periodontics or periodontal surgery. *Periodontology and Periodontics: Modern Theory and Practice* does provide a concise review of the history and development of periodontal thinking, and it may prove useful for examination candidates or middle-aged periodontists; however, it will likely be eclipsed by several excellent and more modern periodontal textbooks.

Reviewed by:

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Associate in Dentistry,
University of Toronto.

COLOR ATLAS OF ORAL MANIFESTATIONS OF A.I.D.S.

Sol Silverman Jr. MA, DDS

1989, B.C. Decker Inc., Burlington, Ontario
C.V. Mosby Co. Ltd.
\$50.75 Canadian.

Dr. Silverman's purpose for this textbook is to provide clinicians with a quick, updated and practical approach to diagnosing and managing oral lesions associated with H.I.V. infection and to be suspicious of the infection when the patient's status is unknown. It is an understatement

to suggest that Dr. Silverman has achieved his goals. This hard-bound, short textbook of 113 pages, is an excellent example of what is possible when a clinician combines his experience and skill with current photographic reproduction techniques.

The book consists of 8 chapters. The first is a brief description of the nature of H.I.V. infection, while the second comments upon the significance of the oral manifestations and the responsibilities of dentists to examine involved oral tissues in a safe and informed manner. The third, fourth, fifth and sixth chapters concentrate respectively upon the oral manifestations of fungal infections (candidiasis), viral infections, bacterial infections, and H.I.V.-associated malignancies. The seventh chapter describes a variety of manifestations ranging from aphthous ulcers to xerostomia. The eighth and final chapter is a series of case descriptions which dramatically demonstrate the progression of the oral lesions as patients advance towards the terminal phase of the infection.

The text of each chapter is minimal but salient and serves as a necessary adjunct to the numerous large high-quality coloured photographs which explicitly illustrate the clinical lesions. The photographer and printer must be congratulated for maintaining constant tones and contrasts in more than 155 clinical illustrations. The photographs are so clear and specific that the viewer is affected by them especially in the last chapter which pictorially reveals the rapidity by which this infection progresses from health to death. Each chapter concludes with a list of current references.

The atlas format may be adversely criticized for attempting to illustrate by photographs a pathologic entity which may have a spectrum of clinical presentations, thus inadvertently creating a simplistic and erroneous impression of the disease. Dr. Silverman has avoided this dilemma by successfully combining excellent appropriately chosen clinical illustrations with brief pertinent texts and topical references. It takes about an hour to review this book after which the reader cannot fail to have a better appreciation for the oral manifestations of H.I.V. infection. At \$50.00 Canadian, it is a bargain and a necessary reference source for all dental health care workers.

Reviewed by:

John Hardie, BDS, MSc, FRCD(C)
Head, Department of Dentistry,
Vancouver General Hospital.

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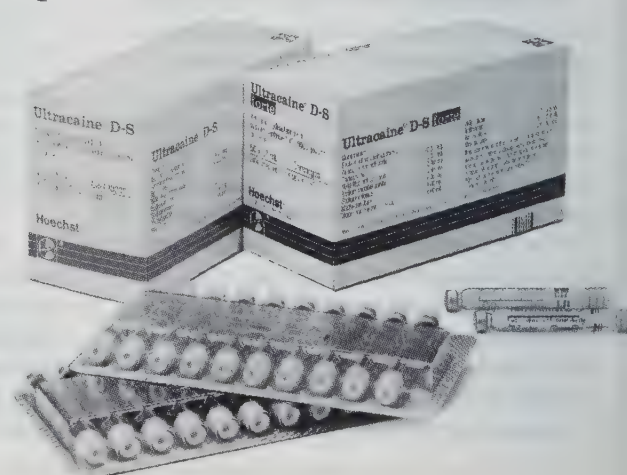
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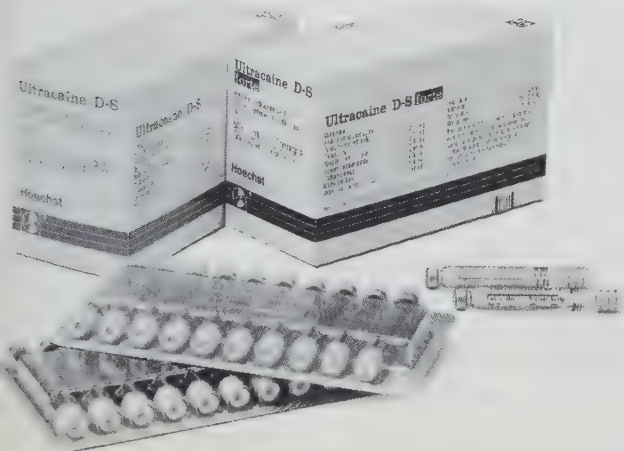
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Practice Management & Success

PRACTICE TRANSITION



Converting

VISION into REALITY

Practice transitions are opportunities for dentists to capitalize on their investment in their practice. As I discussed in my last article, the value of a practice is determined by tangible and intangible assets. Tangible assets like equipment, leases and real estate are easily valued and appear annually on your financial statements. Intangible assets are more difficult to value since they are based on the perceived value of your practice as an effective instrument for the business of dentistry. Intangible assets, therefore, determine the desirability of your practice in the marketplace, its potential value, and your chances for a rewarding transition.

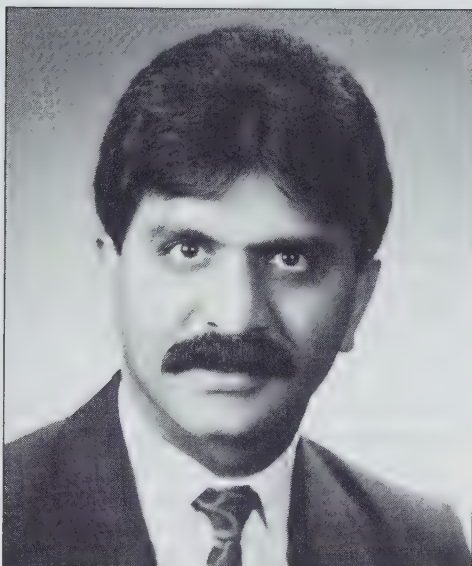
Dentists that cannot prove the wealth of their practice to a potential purchaser will lose out in a practice transition. Each uncertainty felt by the purchaser about the health of the practice will drive down the price they are willing to pay for your practice. And, regardless of what your practice valuation expert tells you, the value of your practice is determined precisely by what the purchaser is willing to pay, not by what you ask.

Very often, purchasers look for a practice that hints at success but lacks the systems to prove its wealth. The purchaser sees these practices as an opportunity to acquire a practice with high potential at a bargain basement price. No purchaser is going to be comfortable paying full value for a practice that cannot prove its worth. Practices that have the systems in place to monitor and report their value can protect themselves from bargain hunting purchasers.

Monitoring Your Practice's Vital Signs

Since the purchaser ultimately determines the value of your practice during a transition, planning for a successful transition must begin from the perspective of a purchaser. I have identified six areas of critical importance to purchasers of dental practices. As a dentist desiring a successful practice transition in the future,

providing a purchaser with proof of your practice's strength in these areas will protect your investment and validate your estimate of your practice's worth. In this article, I will examine three of these critical factors in successful dental practices.



*Imtiaz Manji, President
ExperDent Consultants Inc.*

In each critical area, you must develop a monitoring program. The purpose of any monitor is to give you concise, summarized information by which you can spot trends and make decisions. Most importantly, monitors allow you to set performance standards with your team. Sharing the results of each monitor will allow your team to understand the role each individual plays in the practice. As a natural result of this discussion, your team members will be motivated to set their own performance standards and improve the practice. Once your team is comfortable with the monitoring process, monitors can also be effective tools on which to base profit-sharing programs and bonus structures.

The most difficult step in setting up a monitor is knowing what information you need to track, how to analyse it, and how it can be summarized to quickly reveal important information. You should begin your monitor programs by asking your-

self basic questions. For example, "What is my collections ratio?" This can be easily calculated by dividing your total receipts for a month by your total production for a month and expressing the result as a percentage. Reviewing this figure from month-to-month will show you if your accounts receivable is growing or shrinking relative to production. If the collections ratio is less than 100%, then your accounts receivable is growing. If your collections ratio is greater than 100%, then your accounts receivable is shrinking.

If your gross production is not increasing on a monthly basis (i.e. production has stabilized), and you consistently have collections ratio less than 100%, you will find yourself asking why collections are not being made. This will lead you to begin tracking additional information like how many patients leave their appointment each month with a balance owing but without setting up financial arrangements. Over a six month period of carefully examining the results of your monitor and expanding its scope to answer more of your questions, you will develop a model for collections that takes into account many of the factors affecting your practice's performance.

In each of the three areas listed next, I have outlined some of the information you should be tracking and some of the questions that you should be asking yourself on a monthly basis.

Collections

Flexibility in making financial arrangements with your patients is a key marketing and treatment acceptance tool, but uncollected accounts over an extended period of time will cripple cashflow and seriously undermine the vitality of your practice. Using this monitor will provide timely information about the effectiveness of your financial policies and collection strategy.

Questions to Ask:

- How much of your accounts receivable is supported by post-dated cheques

- and financial arrangements?
- Is your collections strategy effective enough to ensure accounts are being duly collected?
- Is your accounts receivable growing or shrinking relative to production?

Important Information:

- Total receipts broken down as they apply to current accounts, accounts over 30 days, accounts over 60 days, and accounts over 90 days.
- Total receipts over the counter, broken down by payment method (cash, cheque, Visa, MasterCard).
- Total receipts through the mail, broken down by payment method (cheque, insurance payment, etc.).
- Aged accounts receivable and total amount of post-dated cheques and financial arrangements.

Marketing & Retention

The marketing and retention monitor is designed to track the reasons why patients come to and leave your practice. By understanding these factors, you can target your marketing efforts to be more effective and minimize attrition in the patient base. A certain percentage of your patients will continue to leave your practice for various reasons. This monitor shows you the reasons that are under your control and can be eliminated as a source of discontent for patients. Similarly, by understanding what percentage of your production comes from new patients, you can calculate the number of new patients required each month if you want to increase your production goal.

Questions to Ask:

- Is your patient base growing or shrinking?
- What percentage of production is the direct result of new patients?
- How many new patients must be introduced to your practice each month to maintain productivity at current levels?
- Are current marketing strategies meeting their objectives?
- What sources of new patients should be stimulated to generate better new patient flow, and what is the best method to do this?
- What aspects of your practice can be changed to increase patient commitment and prevent attrition?

Monitors are a 6-step process that must be completed on a monthly basis for each critical area of your practice.

Monitor

Collect the raw data from your practice that is a factor in the area you are monitoring.

Analyse

Analyse the data and summarize it in a form that allows you to easily gauge your performance and spot trends.

Set Goals

Based on your performance for each month, set realistic goals for improving your practice's performance in the future.

Plan

Develop a strategy with your team that will allow you to achieve the goals you have set.

Implement

Implement the strategy in your practice.

Review

Evaluate the effectiveness of the strategy based on past performance and fine-tune it to achieve optimum results.

Important Information:

- Number of new patients that came to the practice.
- Reasons for coming to the practice and referrals sources for new patients.
- Number of patients that left the practice.
- Reasons for leaving (i.e. attrition, discomfort, relocation).
- Number of emergency patients.

Continuing Care

In my years in the dental community, I have not come across a single practice that is truly harnessing the potential of their hygiene department. Limitations to the hygiene department are caused more by the number of hygienists, the number of chairs and how you are able to check up on hygiene patients than by low patient retention. Yet patient retention and filling available chair time is still a major problem for many practices. In the accompanying discussion on Technology with this article, you will find an example

of a continuing care analysis that reveals how much potential production is being lost due to limitations in the hygiene department of a typical practice. Having your team understand how low retention really is compared to your practice's true hygiene potential will immediately generate a stronger commitment to hygiene among all team members.

Questions to Ask:

- Is the available hygiene time adequate, insufficient or in excess of the needs of your patient base?
- How successful is your practice at motivating new patients to accept a continuing care program?
- Is your strategy for recalling patients effective enough to ensure retention and your patients' optimum oral health?
- What is your recall acceptance rate?
- Are patients developing a commitment to their oral health and the practice?

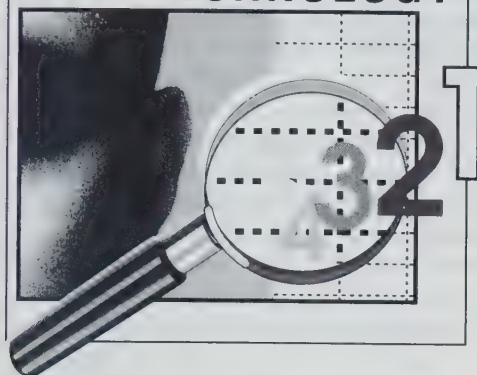
Important Information:

- Total possible continuing care visits.
- Number of visits appointed for patients overdue from previous months, due in the current month, and for new patients.
- Number of visits for due patients rescheduled to future months.
- Number of cancellations and no-shows.
- Number of new patients declining participation in continuing care.

Participation is Key

Converting the vision of a successful, valuable dental practice into reality is surely possible by carefully monitoring trends in your practice and your team's performance. A critical step in the monitors process is communication. It is essential to involve all staff members in monitors — especially during the planning and reviewing stages each month. Team members will become aware of factors that determine the success of the practice on a monthly basis. Communicating openly with your staff about your analysis will give them a sense of ownership in the practice and will result in them setting their own performance standards. This, in turn, will translate directly into improved performance of the entire practice. Just by implementing and understanding these monitors as a team, many practices have made significant strides in improving their quality and value without

TECHNOLOGY



further practice management assistance. In my next article, I will continue to examine important practice management monitors in the areas of production, scheduling and treatment acceptance.

Using your home or office computer and learning to use an electronic spreadsheet like Lotus 1-2-3™ or Microsoft Excel™ can simplify the number crunching you need to do every month for practice monitors. Spreadsheets are computer programs designed for analysing data. They contain built-in functions that can calculate almost anything — from simple arithmetic functions to complex operations like forward averaging and compounding interest. Change one number on a spreadsheet, and the program automatically recalculates everything.

One of the best advantages to using an

electronic spreadsheet is graphing. All spreadsheet programs can graph data in a variety of ways. Since graphs make it much easier to spot trends than peering over a page full of numbers, spreadsheets become an effective tool for monitoring performance in a dental practice. Another advantage to using spreadsheets is that you can play out 'what-if' scenarios easily. In addition to using your spreadsheet to calculate your practice performance for last month, you can project your performance in the future. The continuing care analysis shown here is an example of a projection designed to measure the performance of the hygiene department in a typical practice.

A Closer Look

This continuing care analysis has been developed to measure the true potential of a hygiene department. To begin, you should look at the assumptions. The data that I put into the assumptions column calculates two important numbers — the number of units of hygiene required each month for new patients and for existing patients who have been recalled.

Two important assumptions have been made:

- **First** (and optimistically), I started the projection assuming there were no overdue patients needing to be scheduled in April.

- **Second**, I assumed that the patient base is not growing and the number of patients leaving the practice each month equal exactly the number of new patients coming to the practice.

I also decided that a second hygienist would be hired after six months. This can be seen in the # of Days column where I have doubled the number of hygiene days beginning in October. Once I filled in the assumptions column, the spreadsheet program automatically calculated and

ASSUMPTIONS

6	Units per hour.
7	Hygiene hrs. per day.
42	Hygiene units per day.
25	New patients per month.
6	Units scheduled for new patient visits.
150	Units per month require for new patients.
1500	Active patients.
2	Average continuing care visits per year per patient.
3000	Continuing care visits for active patients per year.
250	Continuing care visits per month.
5	Units scheduled for continuing care visits.
1250	Units per month required for continuing care.

Month	Units Overdue	New Patients	Cont. Care	Units Potential	# of Days	Units Sched.	Units UnSched.	Patients UnSched.	Sched. Efficiency
APR	0	150	1250	1400	18	756	644	129	54%
MAY	644	150	1250	2044	16	672	1372	274	33%
JUN	1372	150	1250	2772	16	672	2100	420	24%
JUL	2100	150	1250	3500	18	756	2744	549	22%
AUG	2744	150	1250	4144	16	672	3472	649	16%
SEP	3472	150	1250	4872	16	672	4200	840	14%
OCT	4200	150	1250	5600	36	1512	4088	818	27%
NOV	4088	150	1250	5488	30	1260	4228	846	23%
DEC	4228	150	1250	5628	32	1344	4284	857	24%
JAN	4284	150	1250	5684	34	1428	4256	851	25%
FEB	4256	150	1250	5656	32	1344	4312	862	24%
MAR	4312	150	1250	5712	36	1512	4200	840	26%

generated the table of numbers.

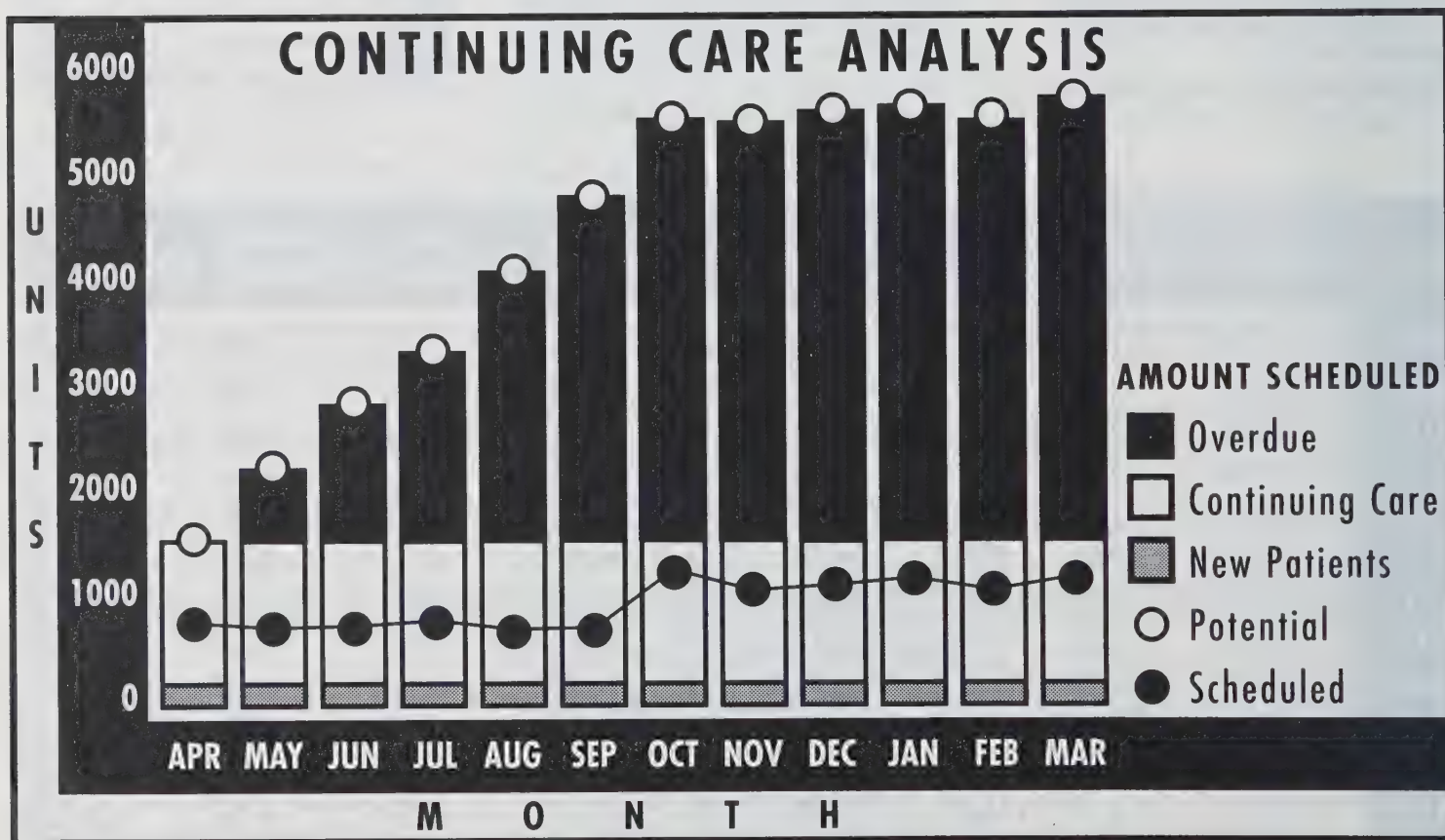
In the table, there are two critically important columns. The first is the *Units Potential* column. This is recalculated in each month as being the number of units required for new patients and patients due for continuing care combined with the number of units of hygiene required for patients overdue. In April, since I assume there are no overdue patients, the hygiene potential is simply the number of units required for new and due patients. The second critical column is the *Units Sched.* column which is calculated by taking the number of hygiene days each month and multiplying it by the number of hygiene units each day. I have assumed that every available hygiene unit is being scheduled. The difference between the hygiene potential and the number of units scheduled ends up in the *Units Unsched.* column. This column reveals how truly ineffective the hygiene department is in most practices and shows how many units have been lost year-to-date since there was no time available for them to be scheduled. You can see by the end of the year, even with two hygienists working in the last 6 months, a total of 840 patients could not be scheduled for hygiene visits.

Graphs Provide Clarity

The graph, which can be created by the spreadsheet program, summarizes the important figures in the table into an easily understood format. Each vertical bar represents the total potential for the month, made up of new, due and overdue patient units. The dotted line shows how much of each month's potential is possible to schedule based on available chair time. You can easily see how one hygienist for 1,500 active patients is inadequate. The number of overdue units each month continues to grow at an alarming rate. This is production that is being lost. After six months when a second hygienist is brought on board, the number of overdue patients is held in check, but there is still a tremendous backlog of hygiene that needs to be completed.

No doubt, many practices will find this graph surprising. There is so much discussion in the dental community about hygiene potential and how the hygiene department is the backbone of a dental practice. Using a spreadsheet to measure your practice's potential for hygiene will reveal important information about how well your practice meets the hygiene needs of your patients. Remember, every

unit in the *Units Unsched.* column is production walking out the door — not because the patient wouldn't schedule an appointment but because your practice couldn't find enough chair time for them. Using the power of spreadsheets, you can simplify and graph results for each of the monitors I have discussed. Once you have completed the initial setup of each monitor in the spreadsheet, you only need to enter each month's raw data and the computer will calculate, analyse and graph the results for you in seconds. △



Specialty Features

RISK MANAGEMENT: The Clinician's Defense Against Liability

D.J. Kenny, BSc, DDS, PhD and C.L. Valentino, MPA, MBA, CHE

In the mid-1970's the health care industry was in the throes of what has been termed the malpractice crisis.¹ In response to this crisis, health care facilities and providers sought alternative solutions to traditional insurance policies. Many of the newly developed programs sought to actively involve the hospital and clinicians as joint partners in the identification, diagnosis and development of remedies to reduce malpractice risks. By the mid-1980's legislation and national accreditation standards clearly fixed the responsibility for medical care quality and the actions of staff on the hospital's board of directors. This represented a shift away from the traditional view that medical care was a product of physicians, and should therefore be left to physicians.² This legislation further drove the trend for risk management and quality assurance in the institutional environment. Since then, a generalization of this trend has affected both the private dentist and physician. Risk management (RM) is a process that provides the clinician and staff with answers to legitimate, but pointed questions about their methods of practice. If the need arises, it will also protect them from reckless accusations and slander. A well-designed RM program will provide protection from litigious patients and reassurances for patients with legitimate concerns.³ As suggested by Rozovsky, it is very easy to have a disgruntled patient, who, with some additional provocation, may seek legal redress for a perceived abrogation of rights.⁴

Dentistry: A Service Business

Dentists, as entrepreneurs, are managers of a consumer service business just like physicians. Kotler and Clarke noted that a medical group practice offers an intangible service called health care; its delivery is inseparable from its deliverers (physicians, nurse-practitioners); its quality is variable with respect to who delivers it; and service is perishable in that an empty nurse-practitioner's office or idle physician means a loss of the associated revenue, since services cannot be stored. Moreover, production and con-

sumption of the service occur simultaneously, so the customer must be integrated into the production process.⁵ Substitution of dentist for physician and dental hygienist/assistant for nurse-practitioner shows this statement to be more broadly applicable.

Service businesses are dominated by one economic rule: once you lose a day's utilization, it is never recouped.⁶ Unlike the manufacturing industry, services cannot be inventoried. Today's lost/missed appointment remains lost revenue forever. Thus, improvements in profitability are rooted in how effectively the dentist can differentiate his/her practice, and communicate or market this information to the current and potential patient population. To succeed in the current competitive environment for the provision of dental services one must be perceived by the patient as a superior practitioner. Albert noted that health care has become a mature industry. In the United States competition is unbearable, patients are scarce, and physicians are abundant. What once was a seller's market is now a buyer's market. Most customers of today demand quality service, an increased rarity in buyer-seller transactions.⁷ As Norfleet noted, the recent rise in the number of complaints against dentists in the United States is in the area of quality of treatment where dentists are unable to substantiate their expertise.⁸

When patients do not get personalized and value-added services that lead to feelings of special treatment, they begin their search for other caregivers. The development of a risk management/quality assurance (RM/QA) program will provide a pre-emptive advantage and improved profit potential.⁷ There is no better investment of a practitioner's time and effort than to secure a safe and caring work environment for his/her patients and staff. A staff that provides positive public relations efforts is a major source of patient referrals.

The RM Program at The Hospital for Sick Children

Over the past decade, the Department of Dentistry at *The Hospital for Sick Children*, has incorporated the principles of

RM to protect the assets of the hospital against loss, and the principles of quality assurance, to monitor the quality of care, into one program. The RM/QA program satisfies not only provincial regulations but provides *proof* that standards of care are monitored and adhered to. This article will outline RM as it protects both the institutional and the private sectors from loss of assets through liability action. A second paper will describe how a QA program can be married to marketing to differentiate a private dental practice.

Risk Management Defined

Risk management is a system for the detection, evaluation, and resolution of risks that involve financial loss from injury to people and property.⁹ Risk management is concerned with the prevention of loss to physical and human resources, security, occupational health and safety, environmental and administrative areas.¹⁰ Risk management is an all-encompassing concept that not only protects the dentist from frivolous patient and staff complaints, but ensures that the office is safe for all persons by providing verification that provincial regulations and prudent rules of practice are adhered to. Quality assurance, on the other hand, deals with the personal philosophy of the members of the practice, quality of service and marketing.¹⁰

Total Risk Control

The Department of Dentistry's RM program is a total risk control program. Total risk control is defined as a managed function that properly recognizes all elements of loss or risk potential and utilizes a broad range of skills and strategies to avoid, reduce or eliminate those acts or situations that might precipitate professional liability claims.¹ The objective of the program is to identify professional and/or administrative weaknesses that create opportunities for negligence, and to build professional and/or administrative strengths that build patient/clinician commitment. Stock and LeFroy (1988) list the following outline for the formalization of a RM program in hospitals: custodial duty, professional duty, legal and insurance issues, quality assurance,

accreditation and patient care.² However, the primary reason for RM remains the protection of assets from loss.

Custodial duties refer to the professional (clinical competence) and non-professional (safe office environment — no asbestos insulation) duty of care one owes to patients. Legal and insurance responsibilities include statutory responsibility for the care given to every patient. Quality assurance and accreditation refer to the guidelines of the Canadian Council on Health Facilities Accreditation (CCHFA) and the Canadian Dental Association. The CCHFA guidelines have incorporated RM into both accreditation standards and surveyor training. These actions formalize the relationship between RM and patient care. Patient care responsibilities refer to the prevention of financial losses due to litigation that might arise from personal injury, loss of private property or negligent care.²

Risk Management Standards

Marsh and McLennan noted that there is only one valid solution to the professional liability problem and that is to reduce the number of occurrences that precipitate malpractice action.¹ Practice standards come from a large number of governmental bodies and organizations that have a vested interest in the maintenance of safety for their constituents (Table 1). Constituents include not only the patient, (external customer), but the employee, (internal customer). Employee selection and training must revolve around the notion that employees work on behalf of the patient, not just the dentist.⁵ A consumer-oriented dental office will be evident by the friendliness and helpfulness that employees demonstrate in the resolution of patient's problems.

Practice standards or guidelines are written to comply with provincial legislation or professional Colleges. Laws written today are often so broad that small businesses, such as dental practices, fall under their jurisdiction and new office procedures need to be formulated to comply with the law.⁸ Two factors must be considered in the assessment of risk: the probability of the risk materializing and the financial losses associated with the occurrence of the risk. If there is a high probability of large financial loss, then the risk must be minimized.¹¹ Standards outline the criteria by which behaviour will be evaluated for its ability to minimize risks. The development of standards is the first step. The second step involves development of a procedure to actively

TABLE I

Regulatory sources of standards of dental practice

Governments

Federal

Charter of Rights and Freedoms
Workplace Hazardous Material Information System (WHMIS)
Canadian Standards Association
Human Rights Legislation
Revenue Canada

Provincial

Pay Equity
Radiation Protection Acts
Health Regulation Acts
Public Hospitals Acts

Municipal By-laws

Waste disposal

The Profession of Dentistry

Regulatory colleges

By-laws
Rules and Regulations
Guidelines

Professional standards of practice in individual provinces, Canada and North America

Canadian Dental Association guidelines
American Dental Association committee reports
Standards expressed by generally accepted texts and professional journals
Community dental practice standards made known to court by expert witnesses

Institutions

Hospital or institution

Institution By-laws
Institution Rules and Regulations
Department regulations

The Law

Health Law and ethics

Current litigation cases
Consent law
Health records
Equipment and technology
Human experimentation

Adapted Kenny, D.J. Dental Risk Management, Toronto, The Ontario Dental Association, 1988 and Canadian Health Facilities Law Guide.

monitor and document behaviour and a feedback mechanism to correct non-compliance with the standard.¹¹

Determination of the impact of non-compliance with the standard must be evaluated. Seven criteria of risk significance have been identified by Kahn (1987) for the institutional setting that are equally applicable to private practice:

1. demonstrated potential for

litigation;

2. the possibility of erosion of reputation or of confidence;
3. a breach of or threat to security of facilities, equipment, staff and supplies;
4. an illegal act committed on the premises;
5. significant actual or potential injury, compromise of well-being, or loss of life of a patient, staff member, or other;
6. minor incidents that occur in a cluster and develop significance because of such groupings or trends;
7. significant occupational health and safety hazards.¹³

If the probability or the costs associated with non-compliance are low, the clinician must decide the cost/benefit ratio of the effort to initiate a standard. Unfortunately, the lack of a documented standard is difficult to differentiate from non-compliance through ignorance or lack of interest.¹¹

A RM Analysis

A RM analysis of potential problems relative to radiation protection, infection control and program maintenance follows.

Radiation Protection, Potential Problem

Repeat radiographs subject the dentist to potential allegations of unnecessary radiation exposure from staff or patients if such repetition was preventable. They also increase costs through waste of time and materials. After operator error or patient movement, the most common reason for failed radiographs are processor chemical/temperature problems.

Standards: One hundred per cent of the solutions in the automatic processor will be tested with a thermometer after the processor has run 30 minutes and before any patient's radiograph is processed. The temperature of the solution must be within ± 1 degree Celsius of the manufacturer's suggested temperature range. One hundred per cent of the automatic radiographic film processors will be tested first thing each day with a film previously exposed through a step-wedge.

Clinical Indicators: The indicators are the temperature of the solutions and the properly exposed film. A step-wedge exposure can be used as a general test of the x-ray timer and the activity of the processor chemicals. These operational indicators give immediate feedback that is easily observed, measured and recorded

and is defined in operating manuals.

Monitoring/Documentation Method: The simplest method of documentation of compliance with the standards is to use a wall calendar or a log book. Each day the following information is recorded and initialled: the time the temperature was recorded, the temperature observed and a pass/fail visual evaluation of the processed film from the automatic processor.

Corrective Action: If the dental assistant observes a film that is not properly processed or solution temperatures that are outside the specified limits, the assistant would notify the dentist and begin corrective action.¹¹

Infection Control, Potential Problem

Gloves worn outside of the dental operatory increase the risk of spreading infection to other patients, staff and clinic areas.

Standard: One hundred per cent of all latex gloves will be worn only inside the operatory, will not touch any surface beyond the operating field after having been in the patient's mouth and will be disposed of only in the designated waste disposal.¹³

Clinical Indicator — the observation of any staff member wearing gloves outside of the dental operatory or the handling or touching of any record or surface by gloved hands. To minimize potential allegations that infections were spread by gloves, the assumption is made that all gloved hands are contaminated, even if they have not been in the patient's mouth.

Monitoring/Documentation Method: A daily log of any violation of the standard must be maintained. Information recorded, dated and signed must include the person involved, the place the incident occurred and the action taken. This is the responsibility of the entire staff.

Corrective Action: If the behaviour continues, follow-up education then disciplinary action may be considered.

RM Program Maintenance Standard

The dentist will lead his/her staff in a regular review of the RM program, its purpose, goals and importance to all concerned. Key success factors of any RM program are a demonstrated active interest by the dentist and scheduled evaluations of the program to review its continued suitability to meet the demands of rapidly changing practice standards and methods.

Standard: One hundred per cent of the dentists and staff will participate in a

yearly RM program review.

Clinical Indicator: The absence of minutes of the RM review.

Monitoring/Documentation Method: Minutes of RM review signed and dated by all who attended and filed with the administrative documentation for the office. This is the responsibility of the dentist.

Corrective Action: The scheduling of the RM review at the earliest possible date beyond the lapsed, agreed upon, date.

These are examples of total risk control standards. They identify the potential risk and the professional skills involved, they assign responsibility and monitor the process to minimize risk. In addition, as the radiation standard demonstrates, the scope of the standard is not limited solely to verify adherence to provincial legislation. Standards that extend beyond legislative requirements provide both grounds for countering complaints and protection of employees. Well designed standards minimize exposure to risks and potential financial losses.

Summary

As Stock and LeFroy conclude, a RM program lends structure and direction to management.² Consistent delivery of high-quality service requires that hundreds of individuals perform numerous roles with a value-added service orientation. Jan Carlzon, the Director of Scandinavian Airlines and the person responsible for its remarkable turnaround, has the proper perspective: "We don't seek to be one thousand percent better at any one thing. We seek to be one percent better at one thousand things."⁷ Risk management is one factor in the development of a service-oriented health care culture that leads to sustained profitability through a stable patient base. The development of a RM program

for a private dental office will lay the groundwork for a higher goal; a demonstrable, verifiable quality of care throughout the practice.³ Δ

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(Thanks to the *Globe and Mail*, October 23, 1990)

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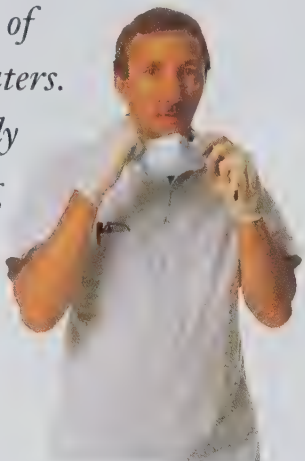
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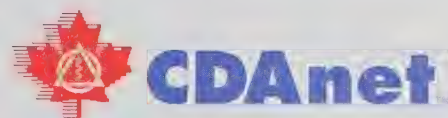
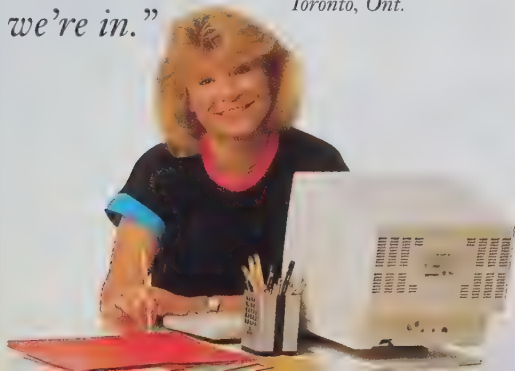
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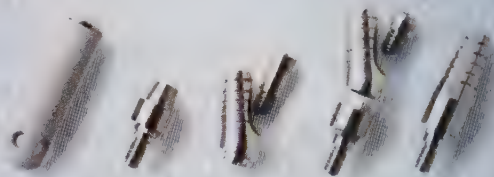
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Pasteur — Germ Free

"I wait, I watch, I question it, asking it to repeat, before my eyes, the wonder of creation. But it remains silent, silent ever since I began the experiments years ago; silent because I have kept it away from the germs in the air, kept it away from life."

These were the words of Louis Pasteur on April 7th, 1864, in an address to an audience in Paris. He had just demonstrated that sterility is maintained if kept free from contamination.

Dr. Joseph Lister — Antiseptics

Pasteur's experiments inspired Dr. Joseph Lister the brilliant surgeon and lecturer at the Edinburgh Medical School. In 1868, he told his students,

"The germ theory of putrefaction is the polestar which will guide you safely through what would otherwise be a navigation of hopeless difficulty. You must be able to see with your mental eye the septic ferments as distinctly as we see flies and other insects with the corporal eye. If you can, you will be properly on your guard against them."

(This was before any of them had ever seen a microbe under a microscope).

Lister was to devote his entire medical life to the development of antiseptic methods. His labours laid the foundation for the successful surgical techniques which are taken for granted in medicine today.

Dr. Ernst von Bergmann — Steam

During the 1870-71 Franco-Prussian War, Dr. Ernst von Bergmann of Berlin proved the value of what he called an "aseptic" dressing. Von Bergmann, giving full credit to Lister for the principle of antiseptics, was the first to render instruments and dressings free from microorganisms by boiling and steaming. He was the first to insist on germ free operating theaters, metal furniture that could be thoroughly cleaned, and steam sterilization. It is just short of a century ago that



Arthur Zwingenberger (right), and engineer/inventor Duncan Newman (centre), outline to Journal Editor Ralph Crawford the three year development of a new cassette autoclave.

the first book, *The Aseptic Treatment of Wounds*, was published.

Following the initiation of Lister and von Bergmann's techniques of antisepsis and asepsis, a number of sterilization techniques have been developed. One-hundred-year-old dental texts hold numerous chapters on a variety of chemical sterilization solutions applicable to the dental operator — some of them not unlike chemicals used today. Nor was the boiling of dental instruments uncommon a mere twenty-five and thirty years ago.

Great advances have been made in dental autoclaves, chemical sterilizers and dry heat ovens. Autoclaving — steam under pressure — is still considered the most efficient method of sterilization but interestingly, only a few new steam patents have been issued since the 1930's. Enter SciCan of Toronto, Ontario, and Arthur Zwingenberger.

Arthur Zwingenberger — Concepts and Challenge

Arthur Zwingenberger's roots are firmly planted in the distribution of health care equipment and supplies. His father started the medical supply business in 1957 and branched into dental products in 1964. Arthur, who holds a Bachelor of

Science degree in Political Science and Economics, and a Masters Degree in Economics, took over the leadership of the business upon his father's death in 1975.

Spurred on by renewed emphasis on infection control resulting from the AIDS epidemic, Zwingenberger challenged himself and his company to develop a dental sterilization method — an autoclave — which reflected his well-founded beliefs:

- Asepsis in the dental office is more essential now than ever before.
- The product should be specific to the dental market.
- Speed and efficiency is of the essence.
- The sterilization mechanism must accept handpieces.
- The product should be more than an autoclave — it also needs to be a tray system to accommodate an efficient flow of instruments.
- The product must be ecologically and universally acceptable.

Duncan Newman — the Engineer

Arthur Zwingenberger did what many wise businessmen do when faced with challenge: he sought out the best pos-

sible person to problem solve. Duncan Newman, a brilliant Canadian engineer who earned his undergraduate degree at McGill University in Montreal, and obtained graduate training as a design engineer at Stanford University in California, was invited into SciCan. His task was to create into steel and electronic circuitry, Zwingenberger's concept of a new autoclave.

As Zwingenberger says, "Duncan started with a concept. He came on board with no preconceived ideas. His objective was to develop something new in dental office sterilization."

'STATIM' — the Cassette Autoclave

From the Latin word *statim* meaning "immediately, on the spot, at once", the STATIM story began early in 1988 as part of a concerted effort at SciCan to create a new sterilizer specifically suited to the modern dental office. All known methods of sterilization were researched: steam, chemical, dry heat, ultrasonic and microwave.

It became clear that by far the best understood method of sterilization and the defacto standard in hospitals was saturated steam under pressure. AAMI, The Association for the Advancement of Medical Instrumentation, whose method of choice is steam autoclaving, has a standard which allows no more than one surviving spore in every trillion instruments processed.

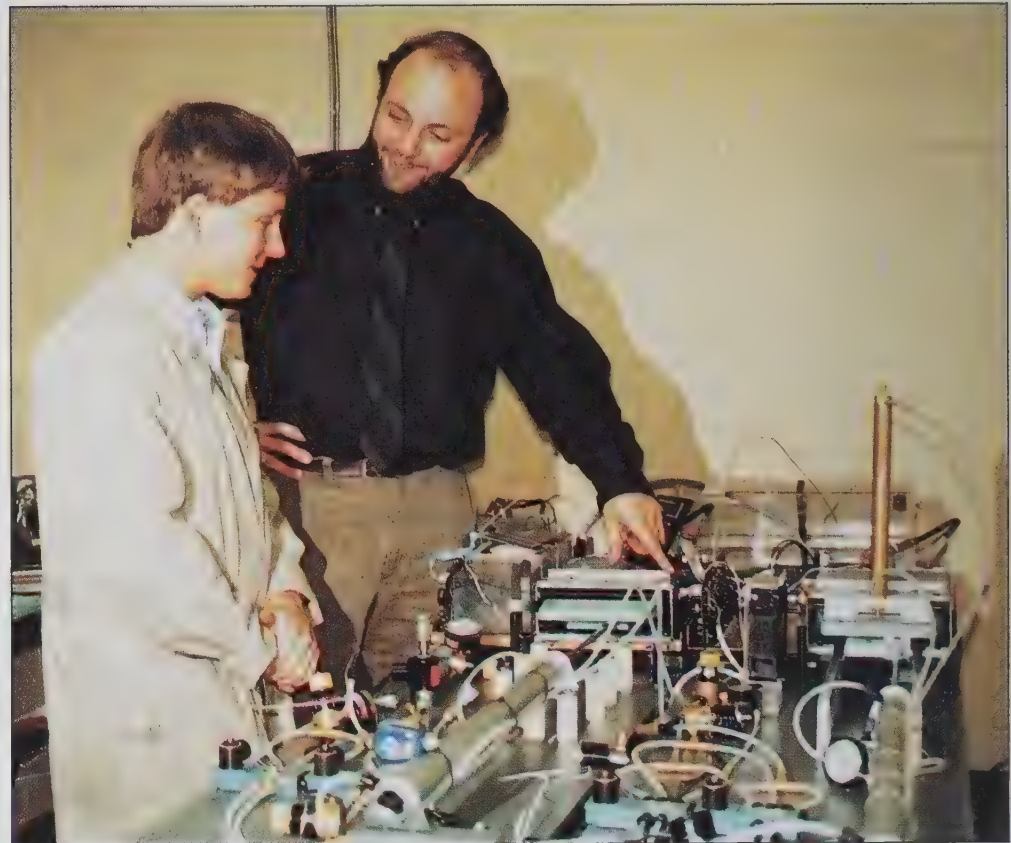
With the focus on steam autoclaves, users were asked how they liked them. Complaints were noted such as slowness, inability to sterilize handpieces, heat and rusting of instruments. Testing was undertaken to eliminate the problems while adhering to the proven principles of steam sterilization. It was found that one of the main problems, oxidation and damage to instruments, could be reduced by improving the air removal at the beginning of the cycle. Automatic drying could prevent post-cycle rusting during the cooldown phase.

A unique aspect of the STATIM system is the cassette tray. It is a standard dental work tray modified and designed so it is strong enough to pressurize and yet conveniently serve as a sterile work tray for chairside use or for storage. Microprocessor software assures a fully automated mechanism — user friendly with no special training required.

With the field testing completed, SciCan began marketing STATIM in September 1990. By year's end, over 100 units had been distributed. Full production in SciCan's Toronto plant was expected by



Arthur Zwingenberger demonstrates the STATIM cassette autoclave in SciCan's Toronto plant.



Paul Damian, STATIM's quality manager, and design engineer Ken Martin, explain sophisticated quality control apparatus. "We've opened and closed this cassette lid 10,000 times."

January 1, 1991. When asked how many STATIM's a day are projected to come off the assembly line, Mr. Zwingenberger replied, "We haven't set a number; it will depend upon the market. Remember, we are looking at world sales. We are capable of producing large numbers when the demand presents."

The price: "We are competitive and in range with other types of autoclaves,"

explained Zwingenberger. "Approximately \$3,600 including taxes will purchase an assembled unit complete with one cassette tray. Additional trays and racks may be purchased for \$90.00."

The search for excellence and total efficiency in the chain of sterilization must never cease and this Canadian innovation is to be applauded. In 1908, at the age of 81, Lord Lister, in a letter to a friend,



STATIM's assembly line — "We are capable of producing large numbers when the demand presents."

wisely mused that it is not machines alone, but human application combined with the machine that will incur results:
"People attribute faults in their results to defects in the means used, when

they are really the consequence of their not using earnest intelligent vigilance against septic contamination by themselves." △



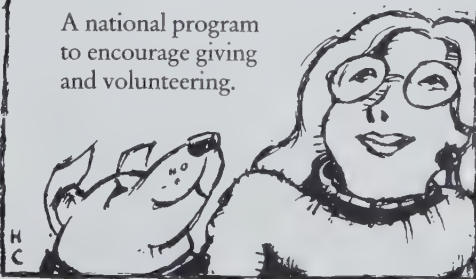
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Challenges Associated with Drug Use in the Elderly: Implications for Dentistry

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Introduction

With our aging society, the dental profession is treating an increasing number of elderly persons.¹ Of this group, approximately 80% of persons aged 65 and older are taking medications and are receiving their potential benefit.²⁻⁷ Indeed, appropriate use of medications is the least expensive, most cost effective component of health care costs.⁸ Safe and effective use of medicines should be an important part of health care for older Canadians, and all health care professionals should share in the responsibility to promote optimal drug therapy in their older patients.

The purpose of this review is to increase the awareness of the dental profession about the challenges associated with drug use in the community dwelling elderly. An understanding of the health risks and problems with drug therapy in the elderly will assist in the identification of older adults who are at "high risk" of drug-related problems, and who may require special attention in dental treatment.

Polymedicine

Although aging must not be regarded as synonymous with illness, 80-84% of the elderly suffer from at least one chronic illness⁹ and, on the average, an older person will have between 3-5 chronic diseases.¹⁰ It is not uncommon, therefore and may in fact be appropriate for elderly persons to receive multiple drugs (polymedicine). Reports indicate that ambulatory elderly patients take an average of 2-3 prescription drugs, although the subgroup of persons aged 75 years and older probably take a greater number of prescriptions.^{1,4,5} Drugs most commonly used by community dwelling elderly (50+ years of age) living in Manitoba, who are prescribed six or more medications, are listed in Table I. To add to the polymedicine, elderly persons will often self medi-

cate with nonprescription drugs.^{3,12} In fact, for economic or cultural reasons the elderly may substitute their prescribed medicines with nonprescription medications. Up to 70% of women and 58% of men use at least one nonprescription drug.¹³ The nonprescription drugs used most commonly by the elderly according to one survey are illustrated in Table II.

The obvious benefits of drug therapy must be weighed against associated risks especially as the number of drugs taken increases. Complex drug regimens are confusing, easy to forget, and inconvenient; adherence to such drug regimens is low.^{5,14-16} Therapy in the elderly is typically chronic which has also been shown to correlate negatively with drug compliance.¹⁴⁻¹⁷ In addition, the use of multiple medications increases the risk of adverse drug reactions and drug interactions.^{18,19} In one study, drug-related problems (including adverse drug reactions and noncompliance) were a main or contributing reason for hospitalization in 19% of persons 50+ years of age admitted to the medical wards of a large Manitoba teaching hospital.²⁰ Table III

outlines some of the drugs most commonly implicated in this study and the most common reasons for the drug-related problems.

Polymedicine in the elderly has significant implications in dentistry. In a study conducted in Iowa, on 3,217 community dwelling elderly, 77% reported taking at least one medication with potential importance for the dentist including those drugs known to cause xerostomia (51%), abnormal hemostasis (39%), and soft tissue reactions (28%).²¹ Medications known to interact with medications commonly used for dental procedures and patients taking cardiac drugs (suggesting decreased procedure tolerance) were also common in this study.

Pharmacokinetic/ Pharmacodynamic Changes with Age

Drug action is dependent on the concentration of drug in the blood, described by pharmacokinetics, and the activity of the drug at the receptor site or pharmaco-

TABLE I

Drugs Most Commonly Prescribed for Community Elderly Heavy Drug Users – 1984¹¹

Pharmacologic Classification	Examples of Brand Names
topical steroids	Cortef, Lidex, Betnovate
thiazide diuretics	HydroDiuril, Esidrex
benzodiazepines	Valium, Dalmane, Ativan
codeine	Tylenol #1, #2, #3, 292
nonsteroidal antiinflammatory drugs	Indocid, Naprosyn, Feldene
penicillins	Pen-Vee, Pentids, Penbritin
beta blockers	Inderal, Lopressor, Tenormin
aspirin	Entrophen
acetaminophen	Tylenol, Exdol
sulfonamides	Bactrim, Septra

dynamics. In younger patients, pharmacokinetic/pharmacodynamic principles can be applied to determine the optimal dose and dosing frequency of a drug. The aging process involves a change in body composition, organ function, and receptor sensitivity, and, in the elderly, pharmacokinetics and pharmacodynamics are less reliable in predicting drug response.²²

The concentration of drug in the blood is a function of three pharmacokinetic processes: Absorption, Distribution, and Elimination. Table IV describes the influences of aging on these parameters. Although with aging, there is an increase in gastrointestinal pH, decreased gastrointestinal absorbing surface and a decreased gastrointestinal motility, the extent of drug absorption is usually not significantly affected. In addition, the rate of drug absorption is often slower, but this is also usually not clinically significant.

Once in the blood stream, a drug variably distributes to different body tissues or fluids such as fat or muscle depending on the nature of the drug. In the elderly, there is a significant increase in the fat to lean body mass ratio, a decrease in the concentration of the plasma protein albumin, and a decreased cardiac output as compared to a younger person. These differences significantly affect the distribution characteristics of most drugs. For example, the volume of distribution of lipophilic drugs, such as the tricyclic antidepressants, increases with age to produce a prolonged duration of activity after drug discontinuation. The volume of distribution of morphine is decreased in the elderly producing an initially higher serum level for any given dose.

The majority of drug elimination from the body occurs by liver metabolism and/or kidney excretion, again depending on the nature of the drug. Drugs excreted by the kidney such as digoxin (Lanoxin) or cimetidine (Tagamet) are eliminated at a much slower rate (a prolonged half-life) in the elderly due to a reduction in kidney function with age. The changes in liver function that occur in the elderly are more complex and less predictable than renal elimination. The rate of liver metabolism of such drugs as propranolol (Inderal), theophylline (Theodur), warfarin (Coumadin), and phenytoin (Dilantin) in the elderly is variable, and these drugs must be dosed on an individual basis.

In other words, for a given drug in a given individual, aging has a variable effect on its absorption, distribution and elimination. This, in turn, will determine the onset, intensity and duration of action for the given drug. In order to predict the

TABLE II

Non-Prescription Drugs Used Most Commonly by the Elderly¹²

Drug Category	Examples of Brand Names
vitamins + minerals	various brands
analgesic preparations	Tylenol, Exdol, Entrophen
stomach preparations	Amphogel, DiGel, Maalox, Mylanta
laxatives	Doxidan, Colace, Ex-Lax, Metamucil
cold and cough preparations	Dimetapp, Sudafed, Benylin
sleep aids	Nytol, Sominex, Calmex, Insomna

TABLE III

Relative Risk of Drugs Prescribed for Elderly Heavy Drug Users and Most Common Reasons for Drug-Related Problems¹¹

"HIGH RISK"	
DRUG CATEGORY	REASON FOR DRUG-RELATED PROBLEM
systemic steroids	adverse drug reaction
calcium channel blockers (Adalat, Cardizem)	adverse drug reaction
digoxin (Lanoxin)	non-compliance
furosemide (Lasix)	non-compliance
methyldopa (Aldomet)	non-compliance
nitrate (Isordil)	non-compliance
theophylline (Theodur)	non-compliance
"MODERATE RISK"	
thiazide diuretics (HydroDiuril)	adverse drug reaction
benzodiazepines (Valium, Ativan, Dalmane)	adverse drug reaction
NSAID's (Indocid, Naprosyn, Feldene)	adverse drug reaction
beta-blockers (Inderal, Lopressor)	adverse drug reaction
sympathomimetics (Ventolin, Isuprel)	non-compliance

serum drug concentration and a drug dose, the most important pharmacokinetic variable is Total Body Clearance (TBC). In general, aging is accompanied by a reduced TBC of most drugs which may lead to an increased serum level of a drug and possibly toxicity. However, the need to reduce the dosage depends on the extent to which the TBC is reduced and the therapeutic index (that is, the ratio of a drug's therapeutic serum level to its toxic serum level) of each drug. The dose and/or the dosing frequency of drugs with a low therapeutic index such as digoxin, antidepressants or quinidine should be reduced to avoid drug accumulation and toxicity. The reduced clearance of drugs with a wider therapeutic index such as penicillins and acetaminophen is less significant, and dosing regimens are usually equivalent to those for younger persons. In establishing the optimal dosage regimen for older adults, clinical observation for the drug's beneficial effects (efficacy) and adverse drug effects should be used in combination with pharmacokinetic principles.

The pharmacodynamics of drugs in

TABLE IV

Pharmacokinetic Changes with Aging

Absorption	↓ absorption surface ↓ splanchnic blood flow ↑ gastric pH ↓ gi motility
Distribution	↓ lean body mass ↓ total body water ↓ albumin ↑ fat altered protein binding
Metabolism	↓ liver mass ↓ liver blood flow ↓ enzyme activity and inducibility
Excretion	↓ renal blood flow ↓ GFR ↓ tubular secretory function

the elderly are less well understood at this time. Studies to date suggest that changes in receptor sensitivity do occur

with aging possibly due to a depletion of neurotransmitters, disease states, or nutritional changes. For example, the elderly require a lower blood level of warfarin (Coumadin) to achieve an equivalent inhibition of clotting. Stated another way, for a given serum level of warfarin, the elderly are at an increased risk of bleeding as compared to a younger person with the same warfarin serum level. The elderly also appear to be more sensitive to the central nervous system depressant and sedative effects of the benzodiazepines (such as Valium) and the narcotic analgesics (such as Tylenol #3). Starting doses of these drugs must be lower than prescribed for younger persons.

There is tremendous interindividual variation in the extent to which these pharmacokinetic and pharmacodynamic changes occur with aging. An older individual may experience an exaggerated or depressed response to a "usual" dose of a drug and it is impossible to predict, with certainty, the optimal dose of a drug prescribed for an older adult. At this time, dosing guidelines for drugs prescribed for the elderly are not well established and the "start low and go slow" approach is recommended when initiating any drug for this age group.

Diagnostic Challenge

Optimal drug use is dependent on a most efficacious and safe prescribed drug regimen. However, the pathophysiologic changes associated with aging present several challenges to the prescriber. Clinical presentation of disease is commonly atypical or vague in the elderly. There may be sepsis without fever or the older patient may have pulmonary edema without breathlessness.²³ The elderly appear to be less sensitive to acute pain such as myocardial infarction (silent "MI") or a ruptured appendix. Confusion or agitation may be the only clinical manifestation of pain with acute onset. On the other hand, the sensation of chronic pain such as pressure sores or rheumatoid arthritis may be greater.

Symptoms of normal aging, symptoms of drug side effects, and symptoms of disease often present with a similar clinical picture in the elderly. As a result, determining the appropriate therapeutic intervention, be it to treat, not to treat or to alter existing therapy, is often difficult.

A thorough investigation into all possible secondary causes of the presenting signs or symptoms is essential to avoid unnecessary polymedicine and its consequences. A typical therapeutic dilemma in a geriatric patient is the acute onset of

agitated behavior and confusion. Possible secondary etiologies which must be ruled out before making a diagnosis of "senility" include: cardiovascular disease (eg. congestive heart failure), cerebrovascular disorders (eg. stroke), infection (eg. pneumonia), trauma/pain of acute onset (eg. hip fracture), and drugs (eg. Haldol, Ditropan, Cogentin, Tagamet, or Tylenol #3). Anorexia in an older patient may be due to an age-related gastrointestinal disorder, drugs such as digoxin (Lanoxin), theophylline (Theodur) or the nonsteroidal anti-inflammatory drugs (Motrin, Feldene, Naprosyn), a psychiatric disorder such as dementia or depression, or ill-fitting dentures.

Drug Compliance

1) Behavioral Challenges

Adherence to drug therapy is influenced by a variety of beliefs, attitudes and assumptions.¹⁰ Patients who recognize illness symptoms, understand illness consequences if not treated appropriately, and perceive the treatment as efficacious are more likely to adhere.^{24,25} Studies suggest that older persons are less likely to recognize illness symptoms,²⁶⁻³⁰ and they may hold several misbeliefs about treatment consequences. Patients may not adhere to their drug regimens for fear of dependence on medications, fear of developing "immunity" to medications, or they may feel guilty about using medications.³¹

2) Lack of Drug Information

Optimal drug taking behaviour also relies upon an understanding of the prescribed treatment. There is ample evidence in the literature to indicate that the elderly are receiving insufficient professional advice about their medicines and that they must rely upon advertising, mass media news items and word-of-mouth for their drug information needs.^{3,12,13,32} Stewart accurately stated, "In our society better instructions are provided when purchasing a new camera or automobile than when a patient receives a lifesaving antibiotic or cardiac drug."³³ These findings are verified by the experience of the Faculty of Pharmacy, University of Manitoba, Medication Information Line for the Elderly (MILE) which has received over 7,000 telephone calls from consumers requesting information about their medications (MILE has been providing pharmacy consultation services since January, 1985).³⁴

The labels on prescription and non-prescription drug containers provide some information, however, instructions

for use are often nonspecific or too small to read. For example, "take as directed" means nothing to an older person who probably has some degree of short term memory loss or is in a state of "information overload" after consultation with the prescriber. Persons taking an antibiotic "every six hours" do not know if this means three times a day, four times daily, or three times a day and one dose in the middle of the night. Dosing frequency is also unclear by "Take one tablet one hour before meals". These directions assume all patients eat three meals a day, consistently each day which, of course is not always the case. "Take one tablet as needed for fluid retention" is often interpreted to mean that the drug is prescribed to help retain water. "Take the tablets until they are all gone" is better understood than "finish the full course of therapy".

Communication between older adults and health care professionals is vital to the consumer's understanding of drug instructions and proper medication use. This, unfortunately, is also sadly lacking.^{4,12} The communication "gap" appears to be reciprocal as patients report not receiving information from health care professionals yet they also never solicit information.^{13,34,36}

3) Functional Limitations

Functional limitations such as hearing loss, reduced visual acuity and forgetfulness further compromise an older person's ability to learn, increases the likelihood of misinterpreting the information presented, and increases their vulnerability to drug errors.³⁷ Due to a yellowing of the lens, elderly may have difficulty distinguishing blue tablets from green tablets, or yellow tablets from white tablets.^{22,38} Prescribing dosage forms which are different in size and shape will help the patient in tablet identification. Tablet size is another important factor limiting patient compliance. Small tablets are often difficult to handle whereas larger tablets may be difficult to swallow. Capsules have a tendency to "stick" in the esophagus, therefore patients should be instructed to take a sip of water before and while taking the capsule, to help moisten mucous membranes.

When giving oral instructions, keep in mind that elderly patients with presbycusis (the hearing loss characteristic of aging) are often unable to distinguish between changes in frequencies and speaking louder only worsens their ability to hear. The ability to process an auditory message can also be delayed with aging, and intervals of silence may be necessary

before an elderly persons responds to a question or comment. Verbal information should be communicated slowly and clearly, and with supplementary written information provided. Written instructions are most readable when large black lettering on a white background is provided.

4) Socioeconomic Changes

The socioeconomic changes with aging also influence drug taking. Elderly persons commonly live alone and lack the supervision or assistance to monitor proper drug use.³⁹ The high cost of medications and the financial limitations of the elderly may prevent patients from taking them appropriately.⁴⁰ Several other stress factors associated with old age may adversely affect one's motivation to adhere to drug regimens such as the death of a spouse, change of location, loneliness, retirement, or a declining functional/cognitive ability.⁴¹

Implications in Dentistry

Elderly persons on multiple drugs require special attention in dentistry. A complete medical history should be obtained including the patient's current diseases and/or conditions, past surgeries, a list of all medications being taken and any sensitivities/allergies to drugs. Nonprescription drugs (such as Benadryl, Otrivin, Sudafed or Aspirin) may contribute to drug-related problems in the elderly and the use of such agents should be determined in the medication history. It has been estimated that 70% of elderly are taking nonprescription drugs without informing their health care providers.⁴² In order to get the most complete medication profile, information pertaining to the use of over-the-counter agents must be determined separately from prescription drugs. If this information is not available from the patient, the dentist should contact the patient's pharmacist and/or physician.

Nonadherence to drug therapy is a serious drug-related problem which, if left unattended, could cause significant morbidity or mortality. Indeed, it has been estimated that 50% of persons of all ages do not adhere to their prescribed drug regimens.³⁷ While taking the medication history, the interviewer should be sensitive to drug non-compliance. If it is perceived that the patient is disinterested or confused about the drugs that have been prescribed, and/or the patient has no home support to supervise medication use, encourage that patient to talk with their pharmacist or physician.

Using the information provided by the

medication history, potential drug-related problems in elderly heavy drug users can be identified. The dentist might be the first person to identify such intra-oral manifestations as xerostomia, dysgusia, gingival hyperplasia or the buccal-lingual-masticatory triad of tardive dyskinesia. Muscular rigidity mimicking Parkinson's disease may be due to antipsychotics (including Thorazine, Modecate, Mellaril), or the gastrointestinal agent metoclopramide (Maxeran). A fine tremor in a patient taking lithium (Carbolith, Lithane) may suggest lithium toxicity, and a Parkinson's patient with abnormal involuntary movements of the extremities may suggest toxicity to therapy (Sinemet, Parlodel, Eldepryl, Prolopa).

Complications due to drug/disease interactions with drugs commonly used during dental procedures will also be more easily avoided if a thorough medication history is maintained (and utilized). The dose of vasoconstrictor should be kept to a minimum in elderly patients taking antiarrhythmics (such as Biquin, Cardoquin, Pronestyl, Norpace, Rythmodan), digoxin (Lanoxin), nitrates (nitroglycerin, Isordil), or antidepressants (Elavil, Norpramine, Parnate). The use of codeine (as in Tylenol #1, Tylenol #2, or Tylenol #3) or a preoperative sedative (Valium, Ativan) in patients taking other drugs which act on the central nervous system (such as Amytal, Day-barb, Dilantin, Tegretol, Serax, Halcion, Lioresal, Flexeril, and opiate analgesics) will cause an additive depressant or sedative effect, and may result in serious sequelae such as confusion, agitation, or falls. In elderly patients taking drugs suggesting a cardiac history (such as Inderal, Adalat, Cardiazem, Isoptin, Capoten), lengthy/stressful procedures should be minimized.

The benefits of prescribing yet another drug for an older adult must be weighed against the risks associated with increasing the complexity and adverse effects of a drug regimen. Patients already prescribed narcotic analgesics for terminal cancer pain or a nonsteroidal anti-inflammatory drug for arthritis may not require additional analgesia, or may require only a Tylenol plain "as needed for pain". Patients with immobility or a history of constipation may do better on Tylenol plain as compared to an analgesic containing codeine which has constipation as a side effect. Keeping the daily dosing frequency to a (OD or BID versus TID or QID) also simplifies the drug regimen and promotes optimal adherence.

At the time of prescribing, the patient should be counselled on the purpose of the drug and the duration of therapy. The

importance of completing a full course of antibiotic therapy should be emphasized, and the dentist should allay fears pertaining to the development of drug "immunity" or "resistance". The number of tablets/capsules prescribed should not be excessive (that is, not greater than one month's supply) as many elderly use fewer doses than prescribed and hoard left over tablets for "next time" to save money.

Conclusions

In summary, the problem of medication misuse in the elderly is real and complex. Although it is generally accepted that persons of all ages taking drugs are at risk of drug-related problems,^{10,37} the deleterious consequences of suboptimal therapy in the elderly may be more serious, less easy to identify, and more difficult to resolve than in younger persons. Drug-related problems, including noncompliance, contribute to 12-20% of hospital admissions in older persons.^{19,20} The incidence of less serious problems in the community dwelling elderly is likely much greater.

It is important for the dental profession to understand the drug-related challenges in geriatric medicine and, as members of the health care team, ensure that the risks associated with drug therapy are kept to a minimum. For a variety of reasons, the older adult is at an increased risk of non-adherence to prescribed therapy, adverse drug reactions and drug interactions. The dentist must be sensitive to these potential drug-related problems and, if a problem is suspected, take the appropriate action.

Maintaining a communication link with the physician and pharmacist to obtain information or discuss drug-related concerns is also essential to ensuring optimal drug therapy in the elderly. Δ

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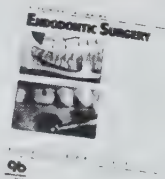
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Cysts of the jaws: A review

John G.L. Lovas, BSc, DDS, MSc, FRCD(C)
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INTRODUCTION

A surprisingly wide variety of cysts differing in incidence, origin, cause, site or predilection, treatment and prognosis, affect the jaws. The following is a brief review of the more common as well as some controversial cysts affecting this area. A classification is presented in Table I.

SOMMAIRE

Une variété surprenante de kystes qui diffèrent par l'incidence, l'origine, la cause, le site ou le lieu de prédilection, le traitement et le pronostic, affectent les mâchoires. Voici une brève revue des plus communs et des plus controversés. Le tableau I en présente une classification.

Overview

A true cyst is defined as a pathologic space lined by epithelium. The central cavity (lumen), contains fluid or semi-solid material.

Cysts arise when inflammation or unknown factors stimulate epithelium within tissues to proliferate. Like a balloon being filled with water, the cyst expands centrifugally, pushing aside normal structures and resorbing bone till only compressed connective tissue remains. This fibrous connective tissue capsule separates the epithelial lining of the cyst from surrounding normal tissue.

Most jaw cysts are derived from odontogenic epithelium, during or after odontogenesis, and are therefore appropriately called odontogenic cysts. But any mass of epithelium within tissue can undergo cystic change, including benign and malignant epithelial neoplasms. Ameloblastomas often contain such large cystic areas that their true neoplastic nature is difficult to appreciate radiographically, surgically and occasionally even histopathologically. Odontomas, the most common odontogenic "tumours", are frequently associated with cysts.

In general, slowly enlarging, static, or slowly resolving lesions have hyperostotic (surrounded by a thin radiopaque

TABLE I

Classification of Cysts of the Jaws

Odontogenic
radicular
dentigerous
odontogenic keratocyst
lateral periodontal
Non-odontogenic
incisive canal
nasolabial
Controversial
primordial
globulomaxillary
median mandibular
median palatal

rim), or "corticated" borders radiographically.¹ A well-defined, circular, radiolucent lesion in the jaws with hyperostotic borders is suggestive of a cyst. At surgery, a fluid-filled soft tissue sac curetted from the jaws is also suggestive of a cyst, but only histologic examination can determine if a lesion is in fact a cyst, and of what specific type. Inflammation/infection usually infiltrates tissue, unlike symmetrically expanding cysts. When inflammation/infection is superimposed on an existing cyst, the radiographic outline of the cyst becomes ill-defined. This is commonly seen in superficial dentigerous cysts on mandibular third molars associated with pericoronitis or periodontitis, the latter involving the adjacent second molar.

A residual cyst is any cyst which remains after attempted treatment that allows continued proliferation of the remaining epithelium (Fig. 1). Since the radicular cyst is the most common type of jaw cyst, the residual radicular cyst is the most common type of residual cyst. To determine what specific entity a suspected residual cyst represents, previous history, radiographs and pathology reports are important.

Odontogenic Cysts

Radicular Cyst (apical

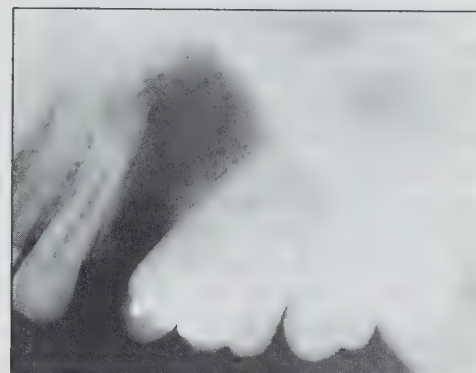


Fig. 1. Occlusal radiograph of a large, chronically inflamed, residual radicular cyst, only the anterior portion of which is corticated. Tooth 2.4 had been extracted 10 years previously and the patient had been experiencing recurrent draining sinuses for approximately two years.

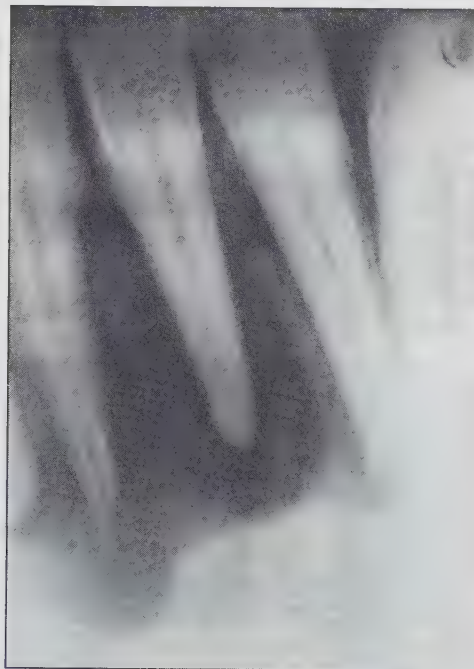


Fig. 2. Periapical radiograph of a well-defined periapical radiolucency associated with teeth 3.1 and 4.1. Only 3.1 was non-vital. Histopathologic diagnosis was radicular cyst. (Radiograph courtesy of Dr. Peter Bagnell).

periodontal cyst, periapical cyst, dental cyst)

By far the most common cyst of the jaws, this inflammatory odontogenic cyst arises as a result of pulpal necrosis, secondary to caries of other injury. Mediators of inflammation exist through the

root apex or lateral canals, stimulating epithelial rests of Malassez to proliferate. Radicular cysts arise in periapical granulomas, and either lesion can become an apical abscess if the intensity of inflammation increases sufficiently. Apical periodontitis is the collective term which includes periapical granuloma, radicular cyst and apical abscess. The specific type of apical periodontitis that results from pulp necrosis is determined by the intensity of inflammation and the presence of epithelial rests of Malassez.

Unless infected, radicular cysts are usually asymptomatic. Permanent maxillary lateral incisors are most commonly involved.² Deciduous teeth are rarely associated with radicular cysts.

A well-defined, circular radiolucency with hyperostotic borders, at the apex of grossly carious or heavily restored tooth (Fig. 2) is characteristic. The periodontal ligament space is typically continuous with the apical radiolucency, the lamina dura with the hyperostotic border of the cyst.

Diagnosis is based on a previous history suggesting irreversible pulpitis, evidence of pulp necrosis, and radiographic evidence of a well-defined, circular, periapical radiolucency, usually with hyperostotic borders.

Whenever soft tissue is excised, histopathologic confirmation of the preoperative diagnosis is professionally and medico-legally advisable.³ Histologically, the cyst lining is non-keratinized stratified squamous epithelium, showing reactive proliferation to the mixed inflammatory cell infiltrate within the fibrous connective tissue capsule.



Fig. 3. Panoramic radiograph of a well-defined, pericoronal radiolucency, with hyperostotic borders around the crown of a developing third molar. The third molar and associated soft tissue lesion were excised. Histopathologic diagnosis was dentigerous cyst. (Radiograph courtesy of Drs. John Christie and A.K. Bhardwaj).



Fig. 4. Panoramic radiograph showing a large multilocular radiolucency with hyperostotic borders involving the right posterior edentulous mandible and ramus. The lesion proved, upon histopathologic examination, to be an odontogenic keratocyst. (Radiograph courtesy of Dr. Frank Lovely).

Radicular cysts do not give rise to odontogenic tumours and their malignant potential is extremely low. Diagnostic errors result from assuming that all periapical radiolucent lesions represent apical periodontitis. Nasopalatine duct cysts, mental foramina, odontogenic keratocysts, lateral periodontal cysts, early periapical cemental dysplasias, central giant cell granulomas, ameloblastomas, and metastases are some of the lesions or structures that are casually unrelated to pulp necrosis, but which can mimic radiographically apical periodontitis.

Dentigerous Cyst (follicular cyst)

Most common among developmental odontogenic cysts, the dentigerous cyst nevertheless has a very low incidence — in the order of .0002-.001% within the general population.⁴ The stimulus that induces reduced enamel epithelium around the crown of an embedded/impacted tooth to proliferate and form a cyst is unknown. These cysts are usually asymptomatic unless infected or associated with a pathologic fracture. Paresthesia, in the absence of secondary infection, is uncommon.

Dentigerous cysts usually appear as well-defined, uni- or multilocular, pericoronal radiolucencies, with hyperostotic borders, around the crowns of embedded/impacted teeth (Fig. 3) and much less frequently, in association with odontomas. Third molars and canines are most often

affected. Permanent teeth are much more frequently involved than deciduous teeth. The radiolucency typically starts at the cervical line. The associated tooth can be displaced and adjacent roots can be resorbed.

Many small pericoronal radiolucencies represent normal or hyperplastic dental follicles — the size of which have been artefactually magnified by a panoramic radiograph. Little is known about the relationship between hyperplastic dental follicles (dental follicles exhibiting a markedly thickened connective tissue capsule), and dentigerous cysts. In general, the larger the pericoronal radiolucency, the more likely is the existence of a dentigerous cyst.

A uniformly thin layer of non-keratinized (rarely orthokeratinized) stratified squamous epithelium, with occasional areas of mucous cells, lines the fibrous connective tissue capsule. When there is inflammation, it is usually secondary to pericoronitis or periodontitis of an adjacent erupted tooth.

An embedded or impacted tooth associated with a pericoronal radiolucent lesion should be extracted, and the pericoronal soft tissue should be thoroughly curetted out and submitted for histopathologic examination to rule out odontogenic keratocyst, ameloblastoma and other less common entities. Dentigerous cysts have a considerable growth potential, sometimes resulting in replacement of large



Fig. 5. Periapical radiograph of a well-defined radiolucency between the roots of 3.2 and 3.3 near the crest of the alveolar ridge. The lesion was diagnosed histopathologically as a lateral periodontal cyst. (Radiograph courtesy of Dr. George Wysocki).

portions of normal jaw bone by the lesion, but the malignant potential of dentigerous cysts is extremely low.⁵ The relatively common eruption cyst is a superficially situated dentigerous cyst.

Odontogenic Keratocyst (primordial cyst)

This is a relatively uncommon developmental cyst which arises from rests of dental lamina due to unknown stimuli. The keratocyst is clinically important because of its destructive potential, high recurrence rate following curettage, and its occasional association with the basal cell nevus syndrome. Occurrence at an early age, multifocality, and a family history of keratocysts are suggestive of the basal cell nevus syndrome.

In the absence of secondary inflammation/infection or pathologic fracture, keratocysts are asymptomatic. The lesions appear cyst-like, but otherwise have no distinctive radiographic features. They can be unilocular or (especially larger lesions) multilocular (**Fig. 4**), associated with teeth in a pericoronal interradicular or periapical relationship, or be unrelated to teeth (primordial). The posterior mandible is the most common site, often associated with impacted/embedded third molars.

The histology of keratocyst is pathognomic. Surrounding a lumen containing parakeratin squamous is a corrugated (wavy) parakeratinized stratified squamous epithelium of even thickness. The basal epithelial cells are cuboidal to columnar, with hyperchromatic, pali-

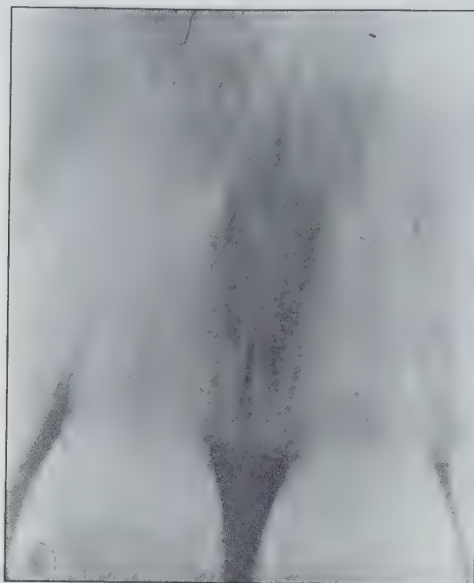


Fig. 6. Periapical radiograph of an incisive canal cyst between the roots of vital central incisors. Pus was draining from a sinus tract at the incisive papilla. Due to acute inflammation, the borders of the radiolucent lesion are ill-defined. (Radiograph courtesy of Dr. R. Danny Coffin).

saded nuclei. The connective tissue wall, like the epithelium, is very thin. Secondary inflammation can obscure the diagnostic features.

Cyst-like jaw lesions are generally treated by curettage, definitive diagnosis being made postoperatively by a pathologist. The recurrence rate following curettage of keratocysts is 27% and the mean time between treatment and first recurrence is 5 years.⁶ Large size, multilocularity, multifocality, thinness of the cyst wall (cigarette paper thin), association with the basal cell nevus syndrome, and daughter cyst formation have all been suspected to increase the probability of recurrence; however, the inherent proliferative capacity of the epithelial lining may be the most significant.⁶ Preoperative biopsy, marginal resection with a rim of uninvolved bone and possibly excision of the overlying alveolar mucosa have been recommended to decrease the probability of recurrence.^{6,7} The malignant potential of keratocysts is extremely low.

Lateral Periodontal Cyst

This is a developmental cyst arising from rests of dental lamina.⁸ Unlike the inflammatory lateral periodontal cyst, there is no causal relationship between this lesion and pulpal necrosis. The mandibular premolar and maxillary lateral incisor areas are most frequently involved. These lesions are asymptomatic, have a limited growth potential, seldom exceeding 1 cm in diameter, and do not tend to recur following curettage.

The lateral periodontal cyst usually presents as a small, well-defined, circular, interradicular, unilocular radiolucency, with hyperostotic borders. Typically it is found between the roots of mandibular premolars (**Fig. 5**) or between a maxillary canine and lateral incisor. There is a rare multilocular variant sometimes referred to as a botryoid cyst.

The lumen of developmental lateral periodontal cysts is lined by a thin layer of non-keratinized stratified squamous epithelium, often exhibiting focal areas of clear cells. Inflammatory cells are seldom seen.

Treatment consists of conservative curettage but since these lesions are often very close to the mental foramen, there is a risk of causing paresthesia. Although it has a limited growth potential, a definitive diagnosis cannot be made without biopsy.

Non-odontogenic Cysts

Incisive Canal Cyst (nasopalatine duct cyst)

This is a developmental, non-odontogenic cyst arising from vestigial bilateral oronasal ducts joining the floor of the nose with the midline of the anterior hard palate. Although inflammation and mild symptoms are common features of these lesions, the stimulus for cyst formation is unknown. The lesion may be completely within bone, completely within soft tissue (then called cyst of the incisive papilla), or partially in both.

The anterior palate is sometimes swollen, tender or even painful, and patients sometimes notice a salty fluid exudate. Occasionally, these lesions are discovered when there is drainage of straw-coloured fluid immediately following injection of local anesthetic into the incisive canal. There is no relationship between this lesion and pulpal necrosis of the maxillary central incisors.

A well-circumscribed, circular, oval or heart-shaped radiolucency with hyperostotic borders, greater than 6 mm in the area of the incisive foramen is typical (**Fig. 6**). Two radiographs, taken at different angles, help to differentiate this lesion from apical periodontitis of the maxillary central incisors.

These cysts are lined by a thin, non-keratinized layer of stratified squamous or respiratory epithelium of relatively uniform thickness. The connective tissue wall often contains inflammatory cells as well as prominent neurovascular bundles. Treatment consists of enucleation using a palatal approach. Recurrence is rare.

Controversial Cysts

"Fissural" cysts were once thought to arise from entrapment of surface epithelium along lines of fusion of embryonic processes. The fissural epithelial entrapment theory is (with the exception of median palatal cysts), no longer generally accepted.⁹ Lesions previously considered to be fissural include globulomaxillary, median mandibular, median palatal and median alveolar cysts.

Globulomaxillary Cyst — An inverted pear-shaped radiolucent lesion causing divergence of the roots of a maxillary canine and lateral incisor was once considered to represent a globulomaxillary cyst. Most of the lesions with these radiographic features are in fact examples of apical periodontitis, while the rest represent various other specific entities.¹⁰ Accordingly, continued use of the term is inappropriate.

Median Mandibular Cyst — If this entity exists at all, it should satisfy the following criteria: non-inflammatory, non-keratinizing epithelial cyst in the midline of the mandible with no direct contact to overlying vital teeth.¹¹

Median Palatal Cyst (mid-palatal cyst of infants) — This lesion is rare and controversial. Most authors consider it to represent a posteriorly displaced nasopalatine duct cyst or cyst of the incisive papilla.¹² In the jaws, the only site where true fusion of embryologic processes occurs is the midline of the palate.¹³ Therefore, if this lesion exists as a distinct entity, it represents the only example of a true fissural development cyst of the jaws.¹¹

Primordial Cyst — This lesion was thought to arise instead of a tooth, due to degeneration of epithelium of the enamel organ before hard tissue formation had started. The histology was usually that of an odontogenic keratocyst. Since missing third molar teeth are very common, when a cyst with the histologic features of an odontogenic keratocyst is found in the position of such missing teeth, it is now simply diagnosed as an odontogenic keratocyst. △

Acknowledgement

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Reprint requests to Dr. Lovas.

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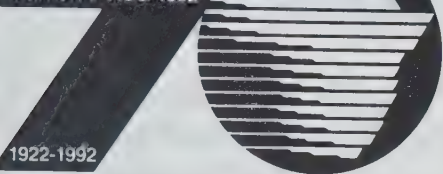
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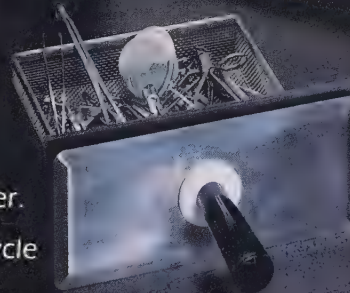
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Lack of Differential Effect by Ultracaine™ (Articaine) and Citanest™ (Prilocaine) in Infiltration Anaesthesia

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ABSTRACT

It has been claimed that anaesthesia of mandibular pulpal and lingual soft tissue, as well as maxillary palatal soft tissue, results following buccal infiltration of the local anaesthetic Ultracaine™ (articaine HC1). However, this has never been scientifically proven and the aim of this investigation was to test these claims by comparing articaine to a standard anaesthetic, Citanest™ (prilocaine HC1). In order to study this, a double blind, randomized trial was conducted in healthy adult volunteers. In these subjects, the ability to induce maxillary and mandibular anaesthesia following buccal infiltration with articaine (as compared to prilocaine given contralaterally), was determined by measuring sensation to electrical stimulation at the tooth, buccal and lingual soft tissue at each of the four non-carious, non-restored, second molars. Results showed that there were no statistically significant differences between articaine and prilocaine in their ability to induce anaesthesia for any tissue at any of the six sites ($p > 0.05$) as determined by chi-square analysis. Analysis of effect on sensation for 25 minutes post-administration also failed to demonstrate a difference between the two drugs. Therefore, these data are not consistent with superior anaesthesia efficacy by articaine at any site, including the mandibular pulpal, lingual or maxillary palatal tissues, in the second molars studied.

SOMMAIRE

On a prétendu que l'anesthésique local Ultracaine™ (articaine MCl) injecté dans la bouche rend insensibles tant les tissus mous pulpaux et linguaux de la mandibule que les tissus mous palataux du maxillaire. Toutefois, comme la preuve

n'en a jamais été établie scientifiquement, cette étude avait pour but de vérifier ces dires en comparant l'articaine à un anesthésique ordinaire, Citanest™ (prilocaine MCl). Pour ce faire, on a effectué des essais en « double aveugle » en choisissant au hasard des sujets parmi des adultes volontaires en santé. Chez ces sujets, on a déterminé l'habileté à anesthésier le maxillaire et la mandibule avec une infiltration buccale d'articaine (comparativement au prilocaine administré contralatéralement) en mesurant le degré de sensibilité des tissus mous dentaires, buccaux et linguaux des quatre deuxième molaires non cariées et non restaurées. Les résultats ont démontré que, statistiquement, il n'y avait aucune différence importante entre l'articaine et le prilocaine touchant leur pouvoir anesthésique sur tous les tissus des six sites choisis ($p > 0,05$) calculé d'après la méthode du Chi². Vingt-cinq minutes après l'administration des deux drogues, on n'a relevé aucune différence également. Ces données ne confirment donc pas que l'articaine serait plus efficace à aucun site des deuxième molaires étudiées, y compris les tissus pulpaux et linguaux de la mandibule ainsi que les tissus palataux du maxillaire.

Key Words: Ultracaine, articaine, Citanest, prilocaine, local anaesthesia.

Introduction

In dentistry, if we wish to obtain local anaesthesia for procedures on teeth or buccal soft tissue in the maxillary arch, it is commonly accepted that administration of local anaesthetics by buccal infiltration will be successful. In order to obtain palatal soft tissue anaesthesia, a separate palatal injection is required — a technique that often has the drawback of being painful for the patient. A local

anaesthetic that would permit use of the buccal infiltration approach to gain palatal anaesthesia would be very valuable for all dentists.

Unlike the maxillary arch, the thickness of buccal cortical bone in the adult mandible precludes buccal infiltration in order to obtain pulpal or lingual soft tissue anaesthesia, necessitating administration of local anaesthetic by nerve block techniques. There are several disadvantages to the use of nerve blocks when compared to the infiltration technique. These include a greater failure rate, reported at approximately 15%,¹ a greater incidence of complications such as trismus, hematoma or paresthesia,¹ and anaesthesia of the entire branch of the inferior alveolar nerve, even if only one tooth is being treated. Therefore, a local anaesthetic that would enable use of infiltration in the mandible would be very advantageous.

In 1983, Ultracaine™ (articaine HC1) was introduced in Canada, and soon thereafter claims were made of its efficacy for anaesthesia of mandibular pulpal and lingual soft tissue by buccal infiltration, as well as palatal soft tissue anaesthesia by means of maxillary buccal infiltration. This has obvious important clinical benefits as it is in contrast to commonly-used anaesthetics which are efficacious by infiltration for buccal soft tissue and maxillary pulpal anaesthesia only. Articaine has achieved wide use, primarily based on the belief of these superior properties. However, a review of the literature²⁻²¹ fails to reveal any scientific study that has specifically demonstrated this. Our aim was to verify these claims by comparing articaine to a commonly-used local anaesthetic, Citanest™ (prilocaine HC1). Citanest Forte™ was selected as a control as it is among the most commonly-used local anaesthetics in dentistry and both of these formulations have the same concentration of epinephrine (1:200,000).

A double-blind randomized trial was designed to test the null hypothesis that articaine was equivalent to prilocaine with respect to the ability to induce pulpal and lingual anaesthesia when administered by buccal infiltration. The primary objective was to answer the question: Was anaesthesia successful? In addition, it was an aim of this study to characterize the time course response of each drug, and to collect data on the ability to induce mandibular pulpal anaesthesia in adults by buccal infiltration of local anaesthetics. In this investigation, we examined effects on the posterior arch by making these comparisons using subjects with four healthy second molars. This study accompanies a parallel investigation of the anterior arch which we conducted on subjects of whom we tested four healthy canines.²²

Methods

A diagram depicting the experimental protocol is shown in **Figure 1**. Subjects of either sex were screened as to their medical health and the health of their permanent second molar teeth, with only non-carious, non-restored teeth used. Inclusion and exclusion criteria for this study are listed in **Table I**. The average age of the subjects was 26 years (range of 23 to 41). This protocol was approved by the Human Ethics Committee of the University of Toronto.

The two drugs being compared were 4% prilocaine with epinephrine 1:200,000 (Citanest ForteTM) and 4% articaine with epinephrine 1:200,000 (Ultracaine DSTM). Self-aspirating syringes were used, calibrated and marked on the shank to indicate where 1.5 ml would be administered. The cartridges were covered with an adhesive paper label, leaving only a 4-mm window adjacent to the cap to allow visualization of the aspiration results, yet concealing the type of anaesthetic. The cartridge was loaded by a nurse assistant so that neither the subject nor the dentist administering the anaesthetic was aware of which preparation was being injected.

This study was double blind, with the order of drug administration randomized. A standard paraperiosteal field block ('infiltration') was given to each of teeth #17, 27, 37, and 47. If prilocaine was selected for administration to tooth 17, articaine was subsequently administered to tooth 27. Similarly, one anaesthetic was then randomly selected for tooth 37, followed by administration of the other anaesthetic to tooth 47. The injection technique was performed as usual,¹ with 1.5 ml administered slowly,

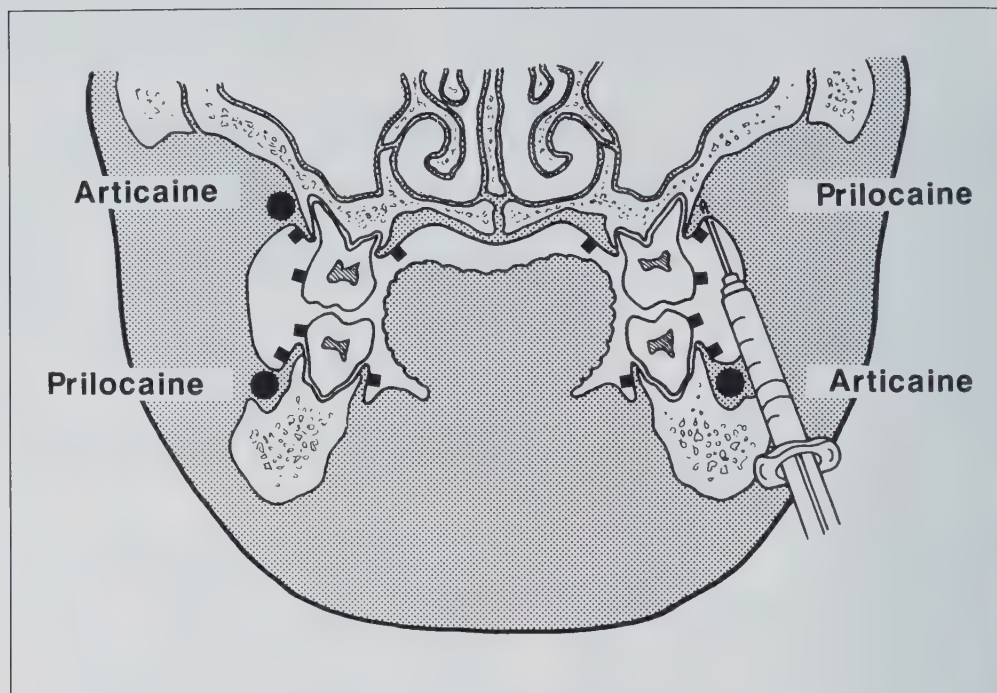


Fig. 1 This diagram illustrates the experimental protocol used for this study. Anaesthetic was administered by infiltration into the maxillary buccal sulcus of the second molar. Prior to and following injection, electrical pulp stimulator (EPS) readings were taken at the adjacent pulp, buccal and lingual soft tissue, as depicted by the closed squares. Administration of the other drug followed in the buccal sulcus of the contralateral tooth, along with EPS readings. This protocol was then repeated in the mandible. The order of articaine and prilocaine administration shown here is an example only, as the order was randomized. The closed squares represent sites of EPS recording and the closed circles or needle tip represent sites of anaesthetic administration. Detail of this experimental protocol is provided in the Methods section.

over a 20-second period. No topical anaesthetic was given in order to avoid a potential confounding variable. Routine precautions were taken during the administration of all injections, and a new needle was used for each of the four injections. The same syringe was used for each of the four injections on the same subject.

Efficacy of anaesthesia was assessed by comparing the ability of each agent to block sensation as determined by electric pulp stimulator (EPS) readings, a method used previously.^{6,19,23} Each tooth had EPS readings (Analytic Technology Corp., Redmond, Washington), in triplicate, at the labial soft tissue, lingual (palatal) soft tissue and on the tooth itself. In order to get a baseline reading, in the time period from 5 minutes prior to the first injection, the EPS was applied to each of the three tissues and the sweep scale increased until the patient indicated a definite sensation had been felt, and this numerical reading was recorded by the nurse-assistant. The sweep range was set initially at 0, with electro-conducting cream (Cardio-CreamTM, Ingram and Bell, Toronto) used as the interface media. The electrode was applied to the gingiva 5 mm superior to the gingival margin when maxillary sites were assessed, and 5 mm superior to the

TABLE I

Inclusion and Exclusion criteria

Inclusion:

All volunteers had to satisfy the following to be included in the study:

1. Between 18 to 50 years of age.
2. In good medical health.
3. Teeth 17, 27, 37, 47 present in satisfactory condition with no restorations.
4. Must give informed written consent prior to participation.

Exclusion:

Subjects with any of the following were excluded from the study:

1. Allergies to amide local anaesthetics or any of the ingredients in the cartridges.
2. Pregnant females.
3. History of any significant medical conditions.
4. Taking any medications which may influence the anaesthetic assessment, such as analgesics, anti-inflammatories or sedative drugs.
5. Active oral or dental pathology or undergoing treatment at the tested sites.
6. Presence of restorative dental work at the tested sites.
7. Inability to provide informed consent.

gingival margin when maxillary sites were assessed. The electrode was applied to the labial midportion of the tooth when assessing pulpal responses. Three recordings were made at each site and then the median value used for data analysis. This median value, and not the average, was used in order to eliminate the potential skewing of data due to improper placement of the probe, that could have resulted in an extreme value (outlier).

Injection occurred at time "0". Beginning at 1 minute and ending by 5 minutes (therefore midpoint of 3 minutes) post-injection, this same sequence of EPS testing at each of the three sites, in triplicate, was repeated. Again, beginning at 6 minutes, the above protocol was repeated and continued until 25 minutes post-injection. Thus, the median time point for each triplicate assessment was -3, +3, +8, +13, +18 and +23 minutes. If no sensation was felt by the maximal level, this reading was recorded ("80"). To rule out involvement of the greater palatine nerve, whenever sensation was felt on the palatal soft tissue (EPS reading of less than 80), the tissue at the palatal gingival margin of the tooth in question was probed with a periodontal probe, and the subject asked if a sensation could be felt. Either a "yes" or "no" response was recorded, and any discrepancy between electrical and tactile responses reported as such.

Thus, there was a recording of EPS measurements made in triplicate for six time points at each of three sites at each of four second molars. Successful anaesthesia was defined as a median value of 80, which is the maximal EPS reading possible, for any triplicate recording at any one of the post-injection time-points.

Statistical Analysis

The data collected were of two types: success of anaesthesia and time-course response of EPS readings. The primary information was the determination of anaesthesia, "yes" or "no". These data were analysed using the Chi-square test, with $p < 0.05$ judged to be statistically significant. Efficacy of anaesthesia of articaine on one maxillary tooth and adjacent soft tissue was compared to prilocaine on the corresponding contralateral tooth and adjacent soft tissue. Similarly, efficacy of anaesthesia in the mandibular site was compared to the corresponding contralateral mandibular site. The primary interest was success of pulpal anaesthesia in the mandible. The secondary interest was lingual (palatal) soft tissue anaesthesia in the mandible and the maxilla.

In addition to the chi-square analysis of success of anaesthesia, we also looked at the time course effect on the EPS readings for each anaesthetic at each tissue site. These particular data were analysed using analysis of variance for repeated measures, and if significance found ($p < 0.05$), this would have been followed by a multiple comparison test, Fisher's Protected Least Significant Difference Test.

Sample Size Calculation

This was calculated for our major interest, mandibular pulpal anaesthesia, based on the following formula.^{24,25}

$$n = \frac{(Z_a + Z_\beta)^2 \times [P_E(1 - P_E) + P_C(1 - P_C)]}{(P_E - P_C)^2}$$

$$= \frac{(1.64 + 1.64)^2 \times [(.85 \times .15) + (.4 \times .6)]}{(.85 - .4)^2}$$

$$= 19.5$$

where n = sample size

Z_a = normal deviate for α . In this case we desired an α level of 0.05 and a one-sided test as we were only interested in the finding that articaine is more efficacious than prilocaine, not less efficacious.

Z_β = normal deviate for β . We desired a high power of 0.95, β level = 0.05. In other words, we required a low probability of making a false-negative error.

P_E = probability of success for the experimental (articaine) group. Given that the success rate for mandibular block anaesthesia is 0.85,¹ we needed a level at least as good as 0.85.

P_C = probability of success for the control (prilocaine) group. Little data are available for this, but we estimated a value of 0.40.

Therefore, a sample size of 20 was required for each treatment and control group, and given that the patient is his/her own control, the final sample size remained 20.

Results

The results of the experiment on second molars are shown in **Figures 2-7** and **Tables II** and **III**. The primary interest was success of anaesthesia in the mandibular pulp. As shown in **Table II**, articaine induced mandibular second molar pulpal anaesthesia in 63% of the subjects tested compared to 53% for prilocaine. This is not a statistically significant difference as determined by the chi-square analysis. The time course of mandibular pulpal anaesthesia is shown in **Figure 2**. It can be seen that there was no difference between the two drugs in the pattern of loss of sensation. This was confirmed by the analysis of variance for repeated measures, which showed no statistically significant differences between articaine and prilocaine. For both drugs, maximal anaesthesia peaked at 3 minutes post-administration, and then a plateau was evident for the remaining time-points assessed.

The success rate for mandibular lingual anaesthesia is shown in **Table II**. Articaine induced anaesthesia in 50% of the subjects compared to 37% for prilocaine. This also is not a statistically significant difference as determined by the chi-square analysis. The time-course of lingual anaesthesia is shown in **Figure 3**, where it can be seen that there was no difference between the two drugs in the pattern of anaesthesia. There was a minimal loss of sensation noted, with the peak occurring at 3 minutes post-administration, and not changing subsequently.

TABLE II

Success of anaesthesia in the mandibular arch following buccal infiltration

Tissue	Drug	Yes	No	Success Rate
Pulp:	Prilocaine	10	9	53%
	Articaine	12	7	63%
Lingual tissue:	Prilocaine	7	12	37%
	Articaine	10	10	50%
Buccal tissue:	Prilocaine	18	2	90%
	Articaine	18	2	90%

Successful anaesthesia was defined as one maximal median EPS value at any one (or more) time-point post-injection. For each of the three tissues, no statistically significant differences were found between articaine and prilocaine in the success rates of anaesthesia. Where the sample size equals 19, one subject's recordings were rejected due to baseline readings of complete anaesthesia.

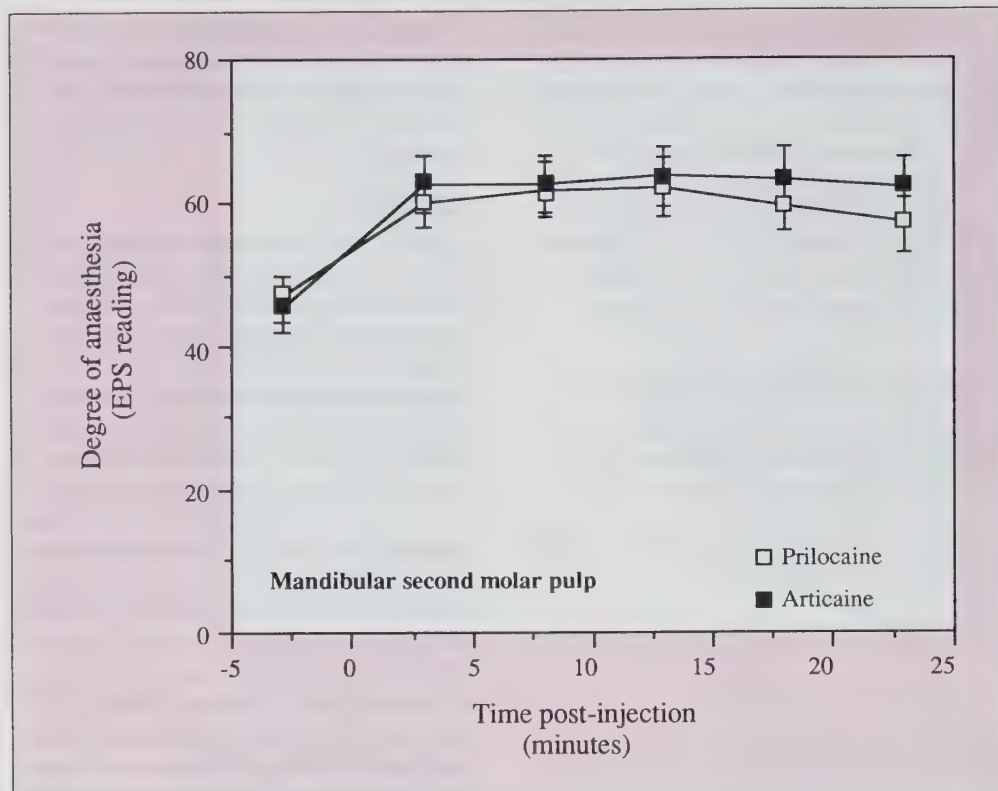


Fig. 2 The time-course of mandibular pulpal anaesthesia is shown above. EPS values are the mean $\pm$ the standard error of the mean (SEM) of the median values for each of the 19 subjects at the 6 time-points assessed. Injection took place at time "0". No statistically significant differences between articaine and prilocaine were found.

The control for the mandibular arch was buccal soft tissue anaesthesia, and **Table II** shows that anaesthesia was induced in 90% of the subjects for both articaine and prilocaine. **Figure 4** shows the time-course effect, with both drugs having a prompt onset of anaesthesia, maximal loss of sensation noted at 3 minutes post-injection, with no change subsequently. Again, no statistical difference was detected between the two anaesthetics.

The results for anaesthesia in the maxillary arch are listed in **Table III**. The primary site of interest here was palatal soft tissue. It can be seen that articaine induced palatal soft tissue anaesthesia in 40% of the patients, whereas prilocaine had a 30% success rate. This difference is not statistically significant. The time-course response is shown in **Figure 5**, which illustrates no difference between the agents, and only a marginal loss of sensation detected post-administration. The results of tactile stimulation confirmed the EPS testing in that there were no instances of a loss of tactile sensation concurrent with sensation to the EPS.

The controls for the maxillary arch were the pulpal and buccal tissues. **Table III** lists the success rates for pulpal anaesthesia which were 95% for articaine and 90% for prilocaine. This difference is not statistically significant. The time-course

is shown in **Figure 6**, and it can be seen that maximal anaesthesia was reached by 8 minutes post-injection, with no change noted subsequently. Again, no statistical difference between articaine and prilocaine was detected.

This second drawback could conceivably be circumvented by selecting a large enough sample size. Therefore, this question remains to be answered; however, based on this study, there is no evidence to suspect that one agent is more efficacious for this than another. If our data reflect the true success rate for anaesthesia

by mandibular infiltration, pulpal anaesthesia should succeed approximately 60% of the time, regardless of the local anaesthetic used. That this is clinically satisfactory is unlikely if the 85% success rate for block proves to be accurate.

Ultracaine™ is used widely in Canada with the basis for this increasingly common use being the belief that it has superior properties with respect to diffusion into tissue. This purportedly allows it to induce pulpal and lingual anaesthesia in the mandible, and palatal anaesthesia in the maxilla, when administered by buccal infiltration. Hypothetically, improved efficacy could be due to specific molecular characteristics, yet the intrinsic properties of anaesthesia-induced conduction blockade (onset, potency and duration) are influenced in an extremely complex manner. Factors affecting this include tissue pH, molecular shape and ionization constant (pKa), lipid solubility, protein binding, barriers to diffusion, factors governing vascular uptake and distribution, among many others.^{26,27} Regardless of individual differences in the biochemistry of the molecule, difference in clinical action must be tested and proven *in vivo*.

A review of the literature on articaine²⁻²¹ fails to reveal any scientific study that has assessed the hypothesis that articaine is superior to another local anaesthetic with respect to mandibular pulpal, lingual or palatal anaesthesia when administered by buccal infiltration. Several studies that have compared articaine to other standard local anaesthetics show no significant differences among them.^{3-6,8,11,17} One study⁶ did compare articaine to prilocaine with respect to maxillary infiltration and mandibular nerve block. This double-blind trial demonstrated no statistically

TABLE III

Success of anaesthesia in the mandibular arch following buccal infiltration

Tissue	Drug	Yes	No	Success Rate
Pulp:	Prilocaine	18	2	90%
	Articaine	19	1	95%
Palatal tissue:	Prilocaine	6	14	30%
	Articaine	8	12	40%
Buccal tissue:	Prilocaine	20	0	100%
	Articaine	20	0	100%

Successful anaesthesia was defined as one maximal median EPS value at any one (or more) time-point post-injection. For each of the three tissues, no statistically significant differences were found between articaine and prilocaine in the success rates of anaesthesia.

significant differences between the two drugs for these two techniques as assessed by the ability to induce anaesthesia. Our results with maxillary infiltration confirm these authors' findings. Other studies have shown articaine to be effective for routine approaches to anaesthesia for standard dental procedures,^{7,13,20} including the ability to permit restorative dentistry to be carried out in mandibular arches in children. As it is commonly accepted that infiltration of any local anaesthetic should induce mandibular anaesthesia in children,¹ it would be expected that articaine could do the same. These studies lacked a control as no other local anaesthetic was assessed, thereby preventing comparisons of relative efficacy.

As stated in Table III, anaesthesia in maxillary buccal soft tissue was induced in 100% of the cases for both drugs. Once again, as shown in Figure 7, the time-course of anaesthesia shows that both drugs had a rapid onset, with peak loss of sensation found at 8 minutes post-administration, and a plateau effect noted subsequently.

Discussion

These results are not consistent with a superior ability of Ultracaine™ (articaine) to induce anaesthesia of any tissue, including mandibular pulp, lingual soft tissue or maxillary palatal soft tissue, when administered by buccal infiltration. No statistically significant differences were detected whether anaesthesia was assessed by absolute determinants ('yes' or 'no') or over a time-course for up to 25 minutes post-administration. This study, along with its parallel investigation,²² is unique in that it directly tested the hypothesis that articaine was equivalent to another commonly-used local anaesthetic in its ability to induce mandibular pulpal, lingual or maxillary palatal anaesthesia when administered by buccal infiltration. The data documented above show that we cannot reject this hypothesis.

It may be postulated that the success of infiltration anaesthesia in the anterior arch may differ when compared to the posterior, as anterior and posterior cortical bone thickness may not be uniform. We have therefore conducted a parallel study in the anterior arch, using an identical protocol as this investigation, only substituting canines for second molars.²² The results on canines were consistent with the second molar data in that no statistically significant differences were found in any of the tissues tested. Therefore this appears to be a reproducible

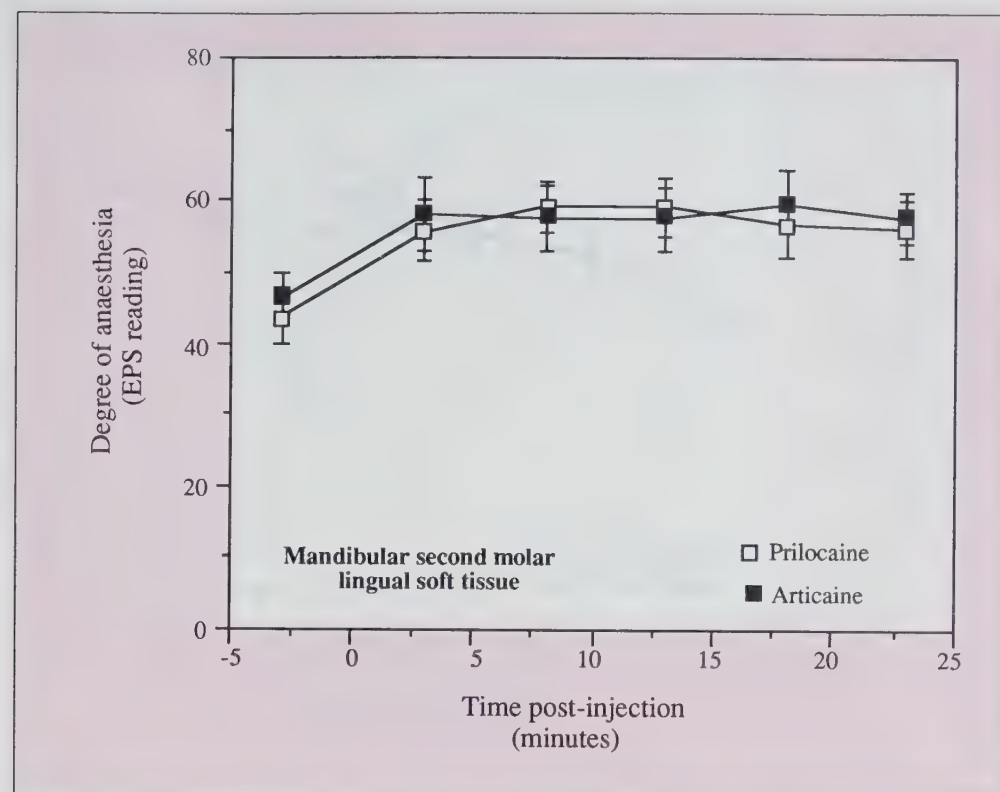


Fig. 3 The time-course of mandibular lingual anaesthesia is shown above. EPS values are the mean $\pm$ SEM of the median values for each of the 20 subjects. No statistically significant differences between articaine and prilocaine were found.

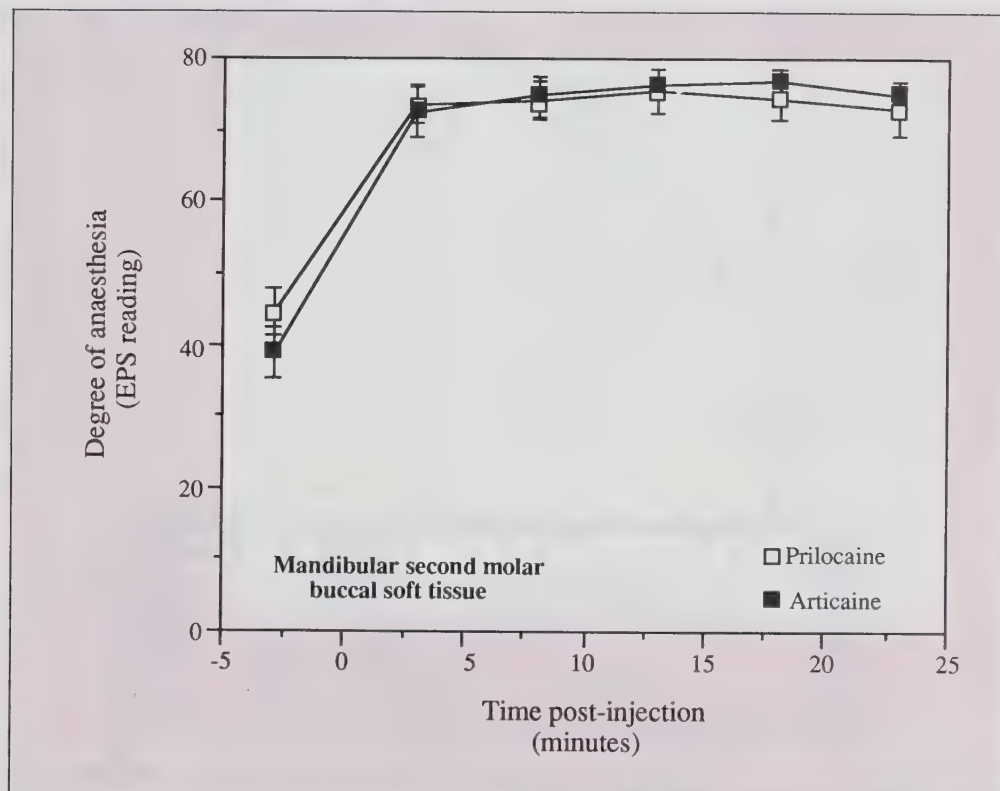


Fig. 4 The time-course of mandibular buccal anaesthesia is shown above. EPS values are the mean $\pm$ SEM of the median values for each of the 20 subjects. No statistically significant differences between articaine and prilocaine were found.

finding in both anterior and posterior arches.

Dentists would agree that any anaesthetic that could allow mandibular infil-

tration to replace mandibular block would be clinically superior. Unfortunately, the scientific basis for this is not present. Table II shows that the success of man-

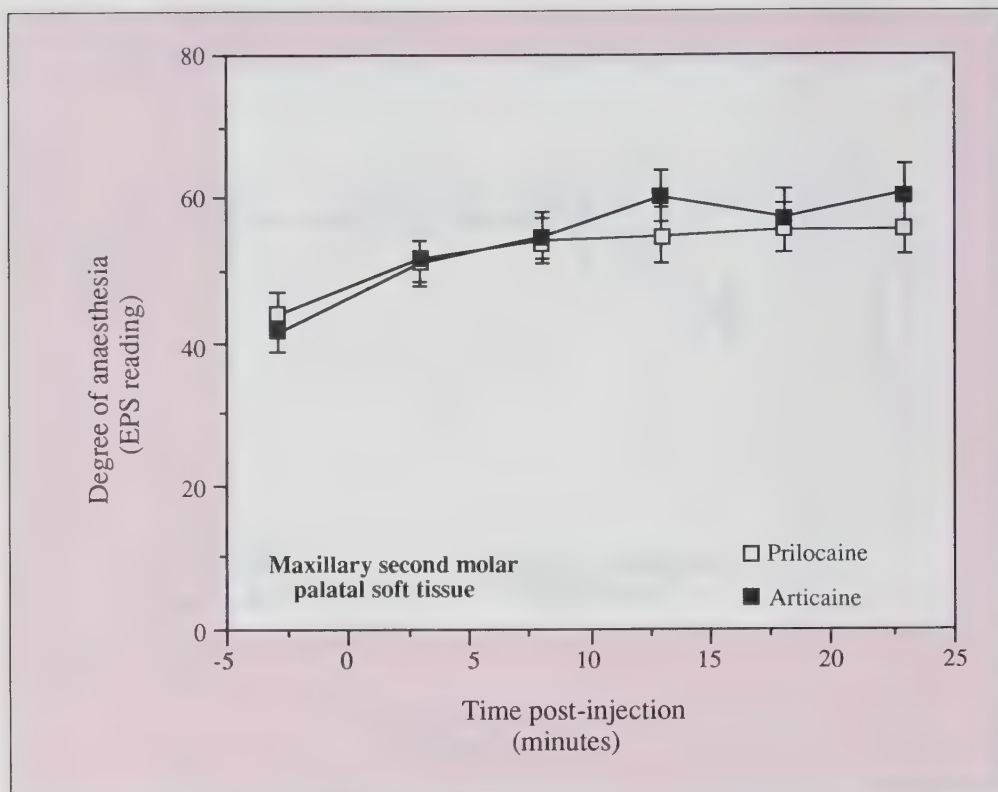


Fig. 5 The time-course of maxillary palatal anaesthesia is shown above. EPS values are the mean $\pm$ SEM of the median values for each of the 19 (prilocaine) or 20 (articaine) subjects. No statistically significant differences between articaine and prilocaine were found.

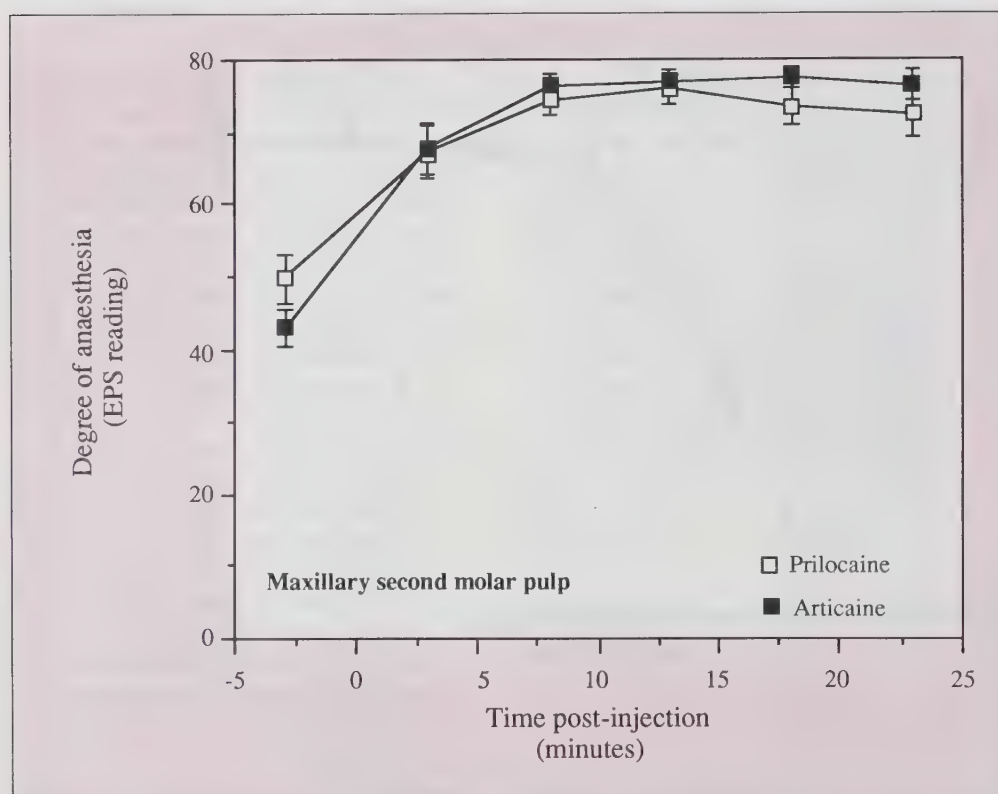


Fig. 6 The time-course of maxillary pulpal anaesthesia is shown above. EPS values are the mean $\pm$ SEM of the median values for each of the 20 subjects. No statistically significant differences between articaine and prilocaine were found.

dibular infiltration is 63% for articaine compared to 53% for prilocaine. This difference is not statistically significant and, of more relevance to the clinician, is likely not clinically important, given that the reported success for mandibular block

is 85%.¹ In order to state this unequivocally, one must test infiltration and mandibular block within the same experimental design to compare the success rates of these techniques. One possible experiment could directly measure EPS

readings following infiltration and compare these to mandibular block on the contralateral side. Two drawbacks are inherent in this potential experiment. One is the lack of ability to blind such a study. The second is that mandibular block is more susceptible to variation in success dependent on factors such as the patients' anatomical variation and ability of the clinician administering the block.

Experimental evidence demonstrating superior efficacy of any agent must be reported, otherwise such claims must be recognized as speculation only. Dentists should not base their use of any drug on unsubstantiated speculation, particularly if the drug is to be administered numerous times daily, as are local anaesthetics. Prudent clinical practice should be based on scientific evidence. Prior to conclusions of superior capabilities of any drug, they must be tested using a scientifically valid approach, such as a randomized, double-blind trial comparing the test drug to a control. This was the approach of our investigation. This study used a sample size that should have been sufficient to allow for a demonstration of a statistically significant difference, if one existed, and articaine was compared to another anaesthetic, with each subject acting as his/her own control.

In conclusion, this controlled, double-blind, randomized trial tested the hypothesis that articaine was equivalent to prilocaine with respect to ability to induce anaesthesia of buccal, lingual and pulpal tissues, when administered by buccal infiltration. In each case we could not reject the hypothesis as no statistically significant differences were found in the second molar teeth assessed. This confirms the findings of our parallel study on canines.²² Therefore, to our knowledge to date, there is no peer-reviewed, scientific, published report of a superior ability of articaine in infiltration anaesthesia.

Acknowledgements

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Society of Toronto (April, 1990) and the American Dental Society of Anesthesiology (May, 1990). Δ

Drs. Haas and Young are Assistant Professors with the Department of Anaesthesia, Faculty of Dentistry, University of Toronto. Drs. Harper and Saso were residents in the postgraduate anaesthesia program at the Faculty of Dentistry during this study.

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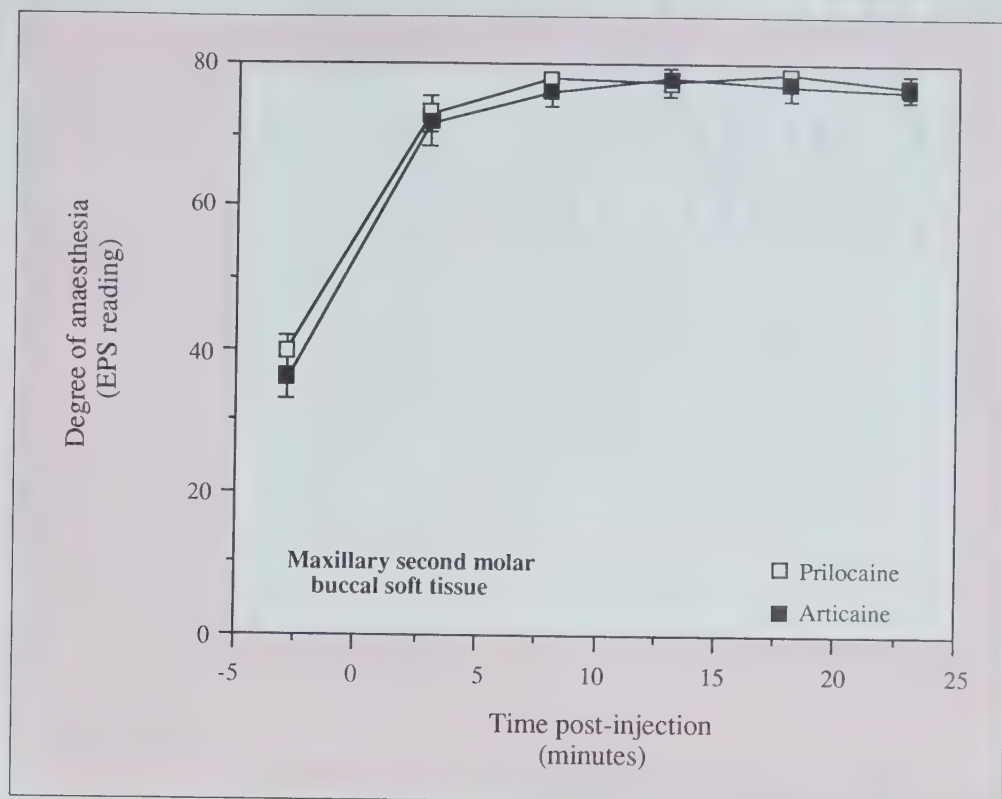


Fig. 7 The time-course of maxillary buccal anaesthesia is shown above. EPS values are the mean $\pm$ SEM of the median values for each of the 20 subjects. No statistically significant differences between articaine and prilocaine were found.

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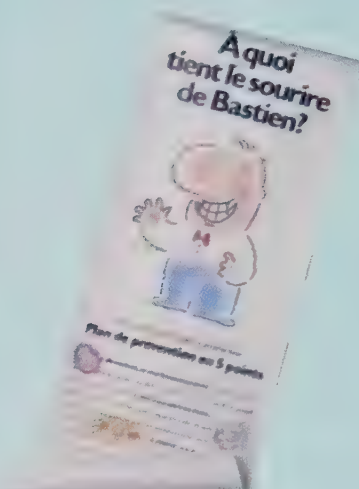


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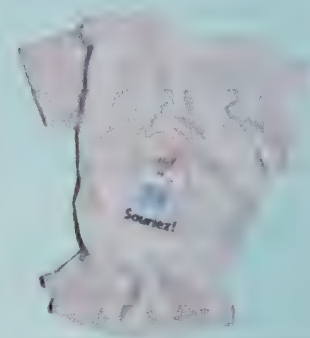
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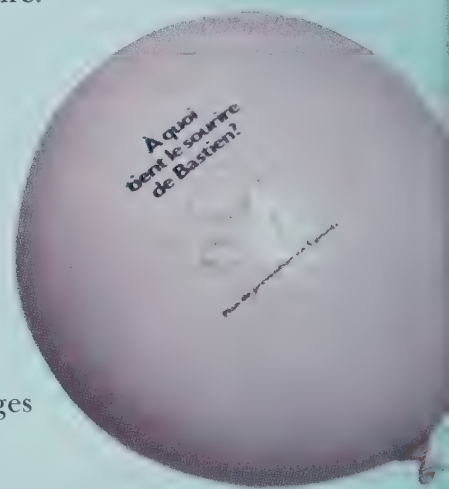
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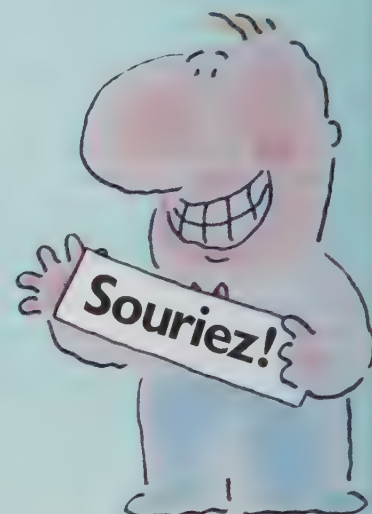
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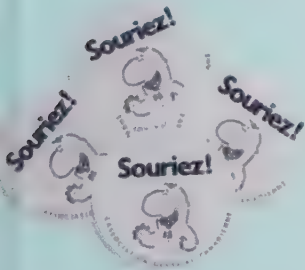
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Placement and replacement of restorations in a military population

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Halifax, N.S.

ABSTRACT

The purpose of this study was to investigate the reasons for placement and replacement of restorations provided to military personnel by all 34 dentists stationed in the four Atlantic provinces of Canada. All dentists who participated in this study are salaried. Over a period of 30 working days, each dentist recorded information on all restorations performed. Data were collected on dentists' year of graduation, patient age, treatment requirements, tooth number, restoration class, materials used and reasons for placement and replacement. All dentists used the same data collection form which was pilot tested. Information was collected on 2,280 restorations from 643 adults, 18 to 57 years of age. Of all restorations, 54.3% were placements and 45.7% were replacements. No difference in placement and replacement rates between amalgam and composites was reported. The major reason for placement was primary caries (90%). The major reasons for replacements were recurrent caries (40.0%), primary caries of interproximal surfaces (18.9%), and fractured restorations (12.3%). Of the 297 MOD restorations, 74.3% were replacements and of the 1,140 Class I+III+V restorations, 27.8% were replacements. This study showed that about half of the restorative work carried out were replacements. Caries is the primary reason for placement and replacement of restorations in adults.

SOMMAIRE

Cette étude avait pour but d'examiner les raisons des restaurations posées et reprises chez les militaires par les 34 dentistes en poste dans les quatre provinces maritimes du Canada. Tous les dentistes qui ont participé à l'étude étaient des salariés. Durant une période de 30 jours ouvrables, chacun a noté des informations sur les restaurations effectuées en plus de recueillir les données suivantes : l'année de l'obtention de leur

diplôme, l'âge des patients, les traitements nécessaires, les numéros des dents, les catégories des restaurations, les matériaux utilisés et les raisons des restaurations posées ou reprises. Les dentistes se sont tous servis du même formulaire qui avait déjà fait l'objet d'un essai pilote. Ils ont ainsi recueilli des données sur 2 280 restaurations effectuées chez 643 adultes âgés de 18 à 57 ans. La majorité des restaurations (54,3 %) étaient posées pour la première fois, alors que les autres (45,7 %) étaient des reprises. Dans les taux des poses et des reprises, on n'a relevé aucune différence entre l'amalgame et les composites. La principale raison des poses était des caries primaires (90,0 %), alors que les principales raisons des reprises étaient des caries récidivantes (40,0 %), des caries primaires aux surfaces proximales (18,9 %) et des restaurations fracturées (12,3 %). Sur les 297 restaurations MOD, 74,3 % étaient des reprises et sur les 1 140 restaurations des catégories I+III+V, 27,8 % étaient également des reprises. Dans cette étude, environ la moitié des restaurations étaient des reprises. La carie est la principale raison des restaurations posées et reprises chez les adultes.

Introduction

Restorative dentistry is the most costly form of dental care in the United States, Canada, and other countries. Approximately 50% of the total cost is attributed to the placement or replacement of restorations.¹⁻⁴ The high cost of restorative replacements and the findings in the mid-1980's that restored teeth account for more than 92% of the average count of decayed, missing and filled teeth in American adults,⁵ generated increased concern and debate among dental educators, dentists, and dental researchers concerning the criteria and rationale for replacement of restorations.⁶

The average life of a restoration has been estimated to be between 4-5 years⁷⁻⁹ and about one-third of all restorations present at one point in time may be classified as unsatisfactory.² Consequently, the potential impact of replacement of restorations in the United States and Canada on the total costs of dental care may be very significant for both the patients and dental insurance programs. Moreover, there is evidence in Canada¹⁰ that over a 12-year period, the replacement rate of restorations remained the same despite a significant reduction in caries prevalence, the implementation of intense preventive programs and the use of improved restorative materials.

The potential magnitude of replacements has posed a significant challenge for the dental profession. Several authors have hypothesized about reasons for reported high rates of restoration replacement. Elderton⁸ and Klausner¹¹ contend that the lack of universally accepted replacement criteria to guide clinicians' on whether replacement is required is a major cause. As a result, gross inconsistencies about the necessity of restorative treatment have been found among dentists.¹² Others suggest that the dental school curriculum is to blame by reinforcing the maxim that "if in doubt fill or refill".^{8,13} Also, dental schools do not usually adopt criteria for placement and replacement of restorations, nor do they standardize and monitor their instructors to follow these criteria. Another reason for the replacement of restorations may be the financial pressures associated with the combination of reduced caries rate, increased dental manpower, and the poor economic climate for dental services.^{8,13,14}

Most articles concerning replacement dentistry in North America are based on data from private practices and few studies of this topic have been completed in treatment situations without economic inducement. The purpose of this study was to investigate reasons for placement and replacement of restorations by salaried military dentists.

Method

A data collection form was prepared for the study. The form gathered information comparable to that reported by Mjör,⁷ and Boyd and Richardson.¹⁰ The form was pilot tested by five military dentists. Afterwards, it was decided to provide specific instructions, including a completed sample data form, which was supplied to each participating dentist. All 34 military dentists stationed in the four Atlantic Provinces of Canada were asked to record information on all amalgam and composite restorations performed over a period of 30 consecutive working days. Data were collected on the dentists' year of graduation, the patient age, restorative treatment requirements, tooth number treated, the restoration class, materials used (amalgam or composite), and the reasons for placement or replacement. The reasons for placement listed on each recording form were: primary caries, tooth fracture and esthetics. Reasons for replacement were: primary caries, secondary caries, poor restoration margin, fractured restoration, tooth fracture, lost restoration, discolouration, mismatched colour of restoration, poor anatomical form, cervical overhang, porous surface and other reasons. More than one reason could be selected by the participating dentists.

Results

Completed data forms were received from all 34 participating dentists. Over the 30-day period, 2,280 restorations were provided for 643 adults, 18 to 57 years of age. Of all the restorations, 54.3% were placements and 45.7% were replacements. Of the amalgam restorations ($n=1,562$), 54.0% were placements and 46.0% were replacements, while out of all composites ($n=718$), 55.2% were placements and 44.8% were replacements.

Caries was identified as the primary reason (97.7%) for placement of amalgam restorations, while the reasons for placement of composites were caries 75.2%, tooth fracture 13.1% and poor esthetics 8.6% (Fig. 1).

Recurrent caries was reported as the main reason for replacement of both amalgam and composite restorations. The complete listing of reasons for replacement is found in Table I. Of the 297 reported restorations classified as MOD, with or without one or more extensions, 74.3% were replacements while of the 1,140 class I, III and V restorations, only 27.8% were replacements (Fig. 2).

The reasons for replacement of the amalgams and composites by restoration class are listed in Table II.

Caries was found to be the primary reason for placement and replacement of restorations in all age groups (Fig. 3). With increasing age, the rate of replacements increased (Fig. 4).

Of the well maintained patients, (those with less than 2 hours of restorative requirements), 45.8% of restorations were placement and 54.2% replacements. Of the non-maintained patients (those with more than 2 hours outstanding restorative treatment requirements), 69.1% of the restorations were placements and 30.9% replacements. Because of the dental fitness requirements for military personnel, a higher proportion of patients 29-58 years of age (85.2%) were classified as maintained while only 35.8% of those under 24 years of age were classified as such. A tendency to find an increased amount of primary caries, and

hence, higher placement of restorations, was noted in the younger dentists.

Discussion

The replacement rate for amalgam restorations found in this study (46%) is consistent with the rates of replacements reported in the literature (38-70%).^{7,9,11} Although many studies did not include primary caries as a reason for replacement, the results of this study identified both secondary caries (39.7%) and primary interproximal caries (26.5%) as the major reasons for replacement of amalgam restorations. Secondary reasons for replacement of amalgam restorations included fractured restorations, tooth fracture and poor margins. These findings, in a salaried practice setting, are comparable to those reported in fee-for-service settings.^{9-11,13}

TABLE I

Reasons for Restoration Replacement

	Amalgam ($n=322$)	Composites ($n=719$)
	%	%
Secondary caries	39.7	40.7
Primary interproximal caries	26.5	2.2
Poor margin	6.8	9.9
Fractured restoration	13.9	8.7
Tooth fracture	7.1	4.0
Lost restoration	3.2	14.6
Discoloured restoration	—	11.8
Mismatched colour	—	5.3
Poor anatomical form	1.3	0.6
Cervical overhang	0.1	—
Porous surface	0.1	—
Other	1.3	2.2

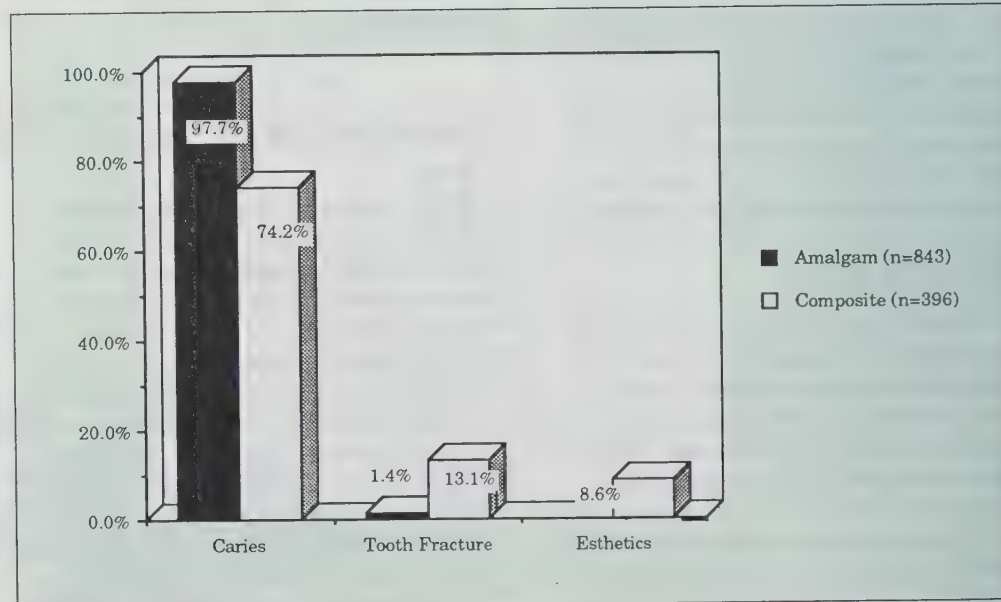


Fig. 1. Reasons for restoration placement.

Data on the clinical longevity and reasons for placement and replacement of composite restorations are scarce. The assessment of the performance of composite resin restorations and comparisons among reported findings is complicated by the significant improvements in restorative materials that have occurred in the last decade. Secondary caries was the major reason for replacement. However, the rate of replacement found in this study (44.8%) was significantly lower than that reported by Mjör⁷ and by Qvist et al.¹⁵ (78% and 61%, respectively). The distribution of secondary reasons is similar to the reasons reported by Qvist et al.¹⁵ However, Mjör⁷ reported a failure rate of 40% due to poor anatomical form, which may be due to the evaluation of early composite resins and silicate cements that were still in use in the early 1970's. The relatively high proportion of failures due to lost resin restorations in this study (14.6%) suggests that adequate cavity preparation and material handling are crucial for the success of composite restorations.

The most frequently reported replacement amalgam restorations were Class II and MOD with one or more extensions and the most frequently replaced composite restorations were Class IV restorations. The larger amalgam replacement restorations suggest that the continued cycle of secondary caries and replacement for other reasons will weaken the tooth integrity. Consequently, replacement dentistry is more expensive and time consuming. Of equal concern is the high replacement rate for Class IV composite restorations found in this study (68.8%). The replacements required due to fractured and lost restorations (48%) indicates that attention to cavity preparation, occlusion, and material handling is of critical importance for these restorations.

While higher placements (76%) were found in the youngest non-maintained patients and highest replacements in the oldest and maintained patients (64.9%), caries remained the primary reason for placement and replacement of restorations for all age groups. This finding, if confirmed by more standardized examinations for dental caries, challenges the contention that dental caries is a disease primarily affecting children and suggests that restorations by themselves provide only mechanical treatment for dental caries. It is important that any maintenance program for adults include continuous monitoring of risk factors for caries development.

In the military system considered in this study, patients are categorized relative to

FIGURE 2

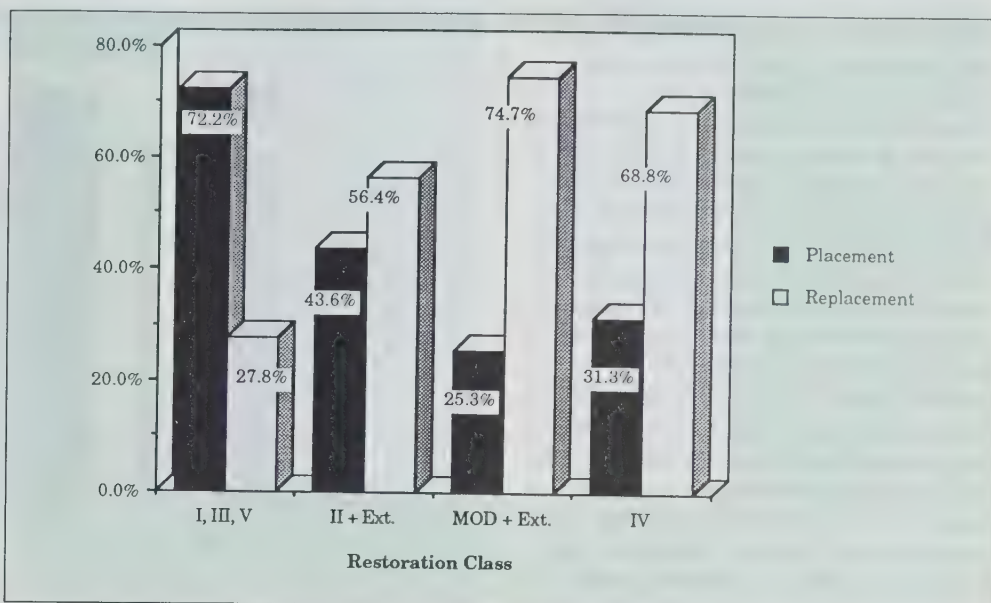


Fig. 2. Comparison of placement and replacement by restoration class.

TABLE II

Reasons for Replacement by Restoration Class

	I, III, V	II + Ext	MOD + Ext	IV
Secondary caries	61.2% (194)	33.5% (120)	31.2% (69)	21.7% (31)
Primary caries	3.8% (12)	32.7% (117)	28.5% (63)	3.5% (5)
Poor margins	7.9% (25)	6.7% (24)	7.2% (16)	11.2% (16)
Fractured restorations	6.6% (21)	14.8% (53)	13.6% (30)	16.8% (24)
Fractured tooth	2.2% (7)	5.3% (19)	12.2% (27)	7.7% (11)
Lost restoration	6.6% (21)	2.2% (8)	3.2% (7)	23.8% (34)
Discolouration	6.0% (19)	0.3% (1)	0.5% (1)	11.9% (17)

the amount of active restorative treatment that needs to be completed to make a patient dentally fit for duty. The dentally fit (maintained group) are kept on regular recall, preventive and treatment visits, while the non-maintained group often have more infrequent recall examinations, preventive and treatment visits. The non-maintained groups consist predominantly of young individuals while the maintained group is older, reflecting the time needed for the dental service to meet the needs of the new recruits. Not surprisingly, the non-maintained group

had higher amounts of placements than the maintained group. Of particular interest is the higher replacements for the maintained group (54.2%) compared to the non-maintained group (30.9%). This finding of increased replacements in well-maintained frequent attenders is consistent with the work of Nuttall¹⁶ and Elderton⁸ who found that filled teeth were more susceptible to replacement in frequent dental attenders. This may represent: (1) failure in diagnosis, (2) failure in material and cavity design, and (3) failure in controlling the risk factors for dental

caries. This finding again points to the potentially large market for replacement dentistry and, more importantly, to the limitations of the restorative-only approach in caries management.

The findings of this study, suggesting that new graduates tend to diagnose an increased amount of caries, lend support to the notion proposed by Boyd that the dental curriculum is a major development factor in the practitioners' philosophy concerning the need to place or replace restorations. Though dental caries is the most prevalent chronic disease in humans, dental schools have failed to train students in reliable and conservative diagnosis of the different types of carious lesions. Curriculum changes in dental schools should remedy this problem. Search for valid, reliable, and universally accepted guidelines to minimize subjective interpretation in diagnosis of dental caries and need for replacement are urgently needed to assist dental clinicians in making judgements relative to the need to place or replace restorations.

Conclusion

The frequency and reasons for placement and replacement of amalgam and composite restoration in this salaried practice arrangement are comparable to those reported in fee-for-service settings. As caries was found to be the primary reason for placement and replacement of restorations in all age groups, it is important that maintenance programs for adults include continuous monitoring and management of risk factors for caries development. Valid, reliable and universally accepted guidelines are needed to assist clinicians in making judgments relative to the need to place or replace restorations. Δ

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Reprint requests to **Dr. MacInnis**.

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FIGURE 3

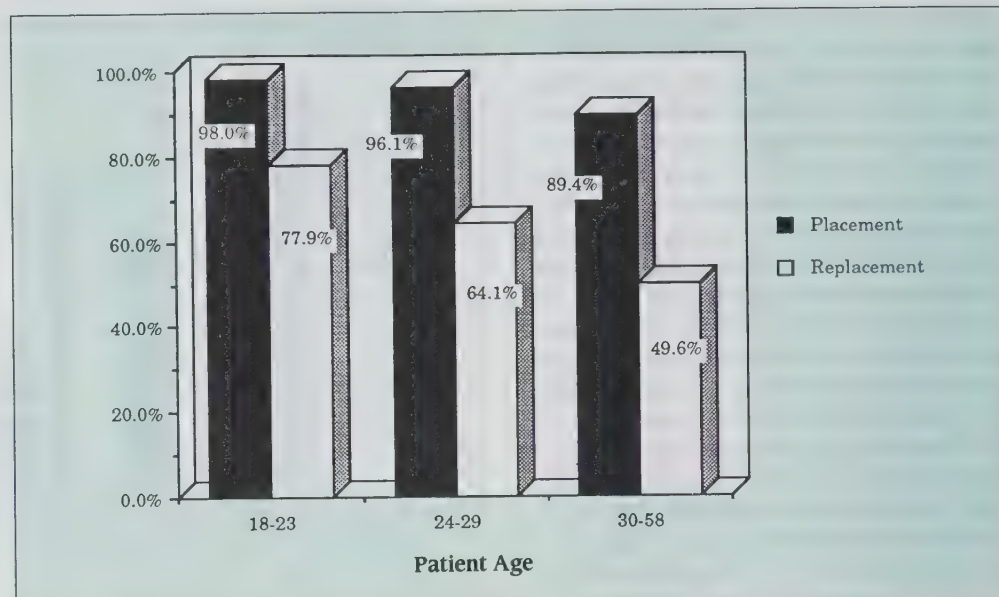


Fig. 3. Percentage of placed or replaced restorations because of caries.

FIGURE 4

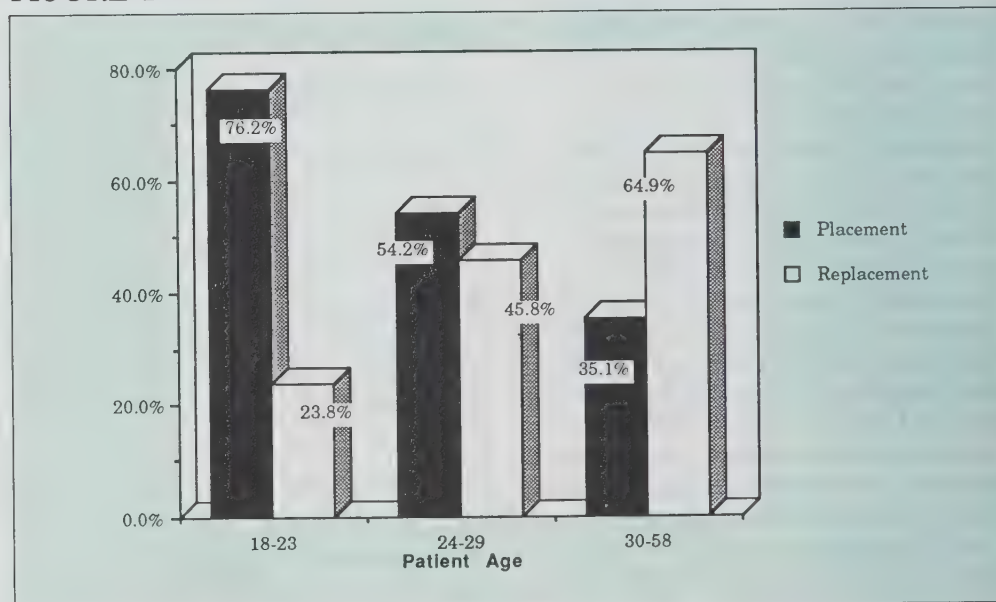


Fig. 4. Percentage of placement and replacement restorations by patient age.

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FIGURE 5

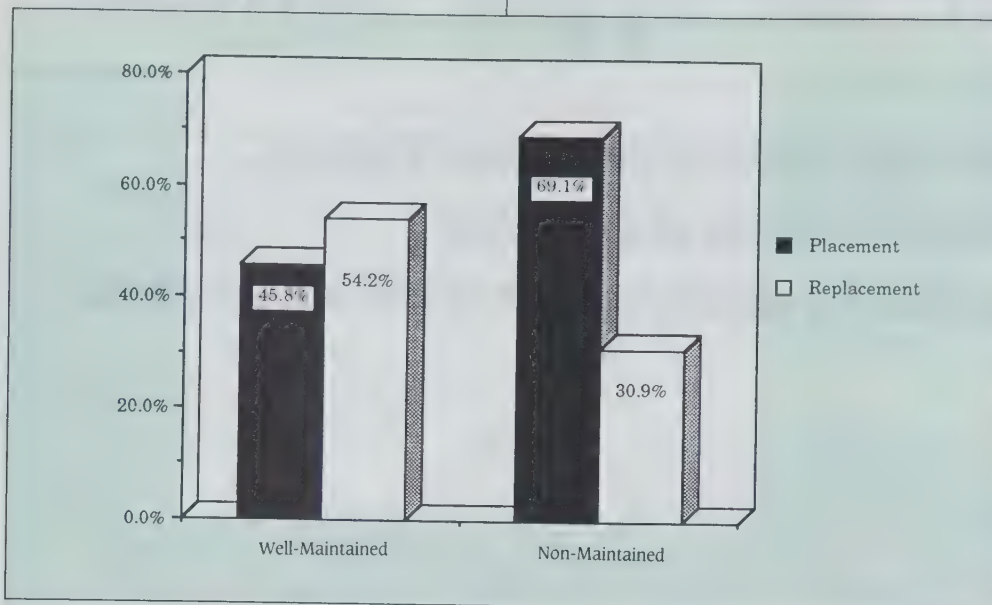


Fig. 5. Percentage of placements and replacements by restorative treatment requirements.

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10th Annual Meeting of Academy for Sports Dentistry
Dr. A. Wood (416) 823-2008

May 2-4, 1991

Annual Spring Meeting
Ontario Dental Association
(416) 922-3900

May 4, 1991

Class of 5T6, University of Toronto
Dr. E.J. Rajczak (416) 523-0133

May 10-11, 1991

New Brunswick Dental Society Meeting
(506) 634-1324

May 10-11, 1991

Periodontal Care for the Older Adult
Canadian Academy of Periodontology
University of Toronto
(416) 979-4503

May 16, 1991

George C. Hare Lectureship
Toothache: Diagnostic and Therapeutic Considerations
University of Toronto

May 23-26, 1991

38th Annual Meeting
Canadian Association of Oral and Maxillofacial Surgeons
(403) 468-7270

May 24-25, 1991

Newfoundland Dental Association Meeting
(709) 368-0171

May 25, 1991

The Wonderful World of Glass Ionomers
Dalhousie University
(902) 494-1674

May 26-30

Les Journées dentaires du Québec
Ordre des dentistes du Québec
(514) 875-8511

May 30-June 2, 1991

Alberta Dental Association Meeting
(403) 432-1012

May 31-June 2, 1991

P.E.I. Dental Association Meeting
(902) 894-4022

June 10-14, 1991

Dental Hygiene Refresher Course
Dalhousie University
(902) 494-1674

June 14-15, 1991

Nova Scotia Dental Association Meeting
(902) 420-0088

June 15, 1991

Adult Orthodontics: Rationale and Treatment for the Combined Ortho-Perio Problems
Edmonton Multidisciplinary Dental Study Club
Dr. Donald Yu (403) 428-9166
or (438-2699)

August 21-25, 1991

Annual Meeting
Canadian Academy of Endodontics
Dr. Thomas Larder (902) 429-0477

August 24-28, 1991

Canadian Dental Association Annual Convention in Quebec City
(See blue pages for more info)
(613) 523-1770

September 19-21, 1991

Annual Meeting of Canadian Academy of Prosthodontics
Dr. Alan R. Mills (519) 661-3328

October 3-5

28th Annual Scientific Meeting – Dentistry 2000
Canadian Academy of Restorative Dentistry
(604) 734-3720

April 17-21: American Association of Endodontists.
Contact: Ms. I.S. Kudo, 211 E Chicago Ave, Suite 1501, Chicago, IL 60611, USA.

April 17-21: American Association for Dental Research in Acapulco. Contact: Judith Gauchel, 1111-14th St NW, Suite 1000, Washington, DC 20005, USA. (202) 898-1050.

May/Mai 1991

May 2-5: American Academy of Cosmetic Dentistry in New Orleans. Contact: Ms. Barbara Jo Zoeller, 2709 Marshall Crt, Madison, WI 53705, USA.

May 9-10: A New Era of Composite Bonding – A Materials/Techniques Update at Tel Aviv University, Israel. Further details can be obtained from Dr. Hart J. Levin, 2006 Bathurst St, Toronto, Ont M5P 3L1 or Dr. Colin Gorfil, The Maurice and Gabriela Goldschleger School of Dental Medicine, Tel Aviv University, Ramat Aviv 69978, Israel.

May 9-12: American Dental Society of Anesthesiology. Contact: Mr. Peter Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

May 12-15: American Association of Orthodontists. Contact: Ms. Audrey Schaper, 460 N Lindbergh Blvd, St. Louis, MO 63141, USA.

May 18-22: 45th Annual Meeting of the American Academy of Oral Pathology in Minneapolis, MN. Contact: Dr. Dean K. White, Secretary-Treasurer, American Academy of Oral Pathology, College of Dentistry, University of Kentucky, Lexington, KY 40536-0084. Tel: (606) 233-5515.

May 19-24: Academy of Denture Prosthetics. Contact: Dr. Charles Swoope, 1515 – 116th Ave NE, Suite 303, Bellevue, WA 98004, USA.

May 25-28: American Academy of Pediatric Dentistry in San Antonio, TX. Contact: Dr. J.A. Bogert, 211 E Chicago Ave, Suite 1036, Chicago, IL 60611, USA.

May 30-June 1: Dutch Dental Exhibition. Contact: Events Services Centre BV, Postbox 2139, 2800 BG Gouda, The Netherlands. 31-1-820-38166.

June/Juin 1991

June 5-8: Medical/Hospitech 91 in Bangkok, Thailand. For more information, contact: SHK International Services Ltd., 23/F, 151 Gloucester Rd., Wanchai, Hong Kong.

June 5-10: 3rd International Symposium cum Training Course on Osseointegrated Dental Implants in Singapore organized by the University of Pennsylvania. Contact: Orchard Dental Centre Pte Ltd., 268 Orchard Rd #05-07, Singapore 0923. Tel: (65) 7343162.

June 5-12: American Dental Hygienists Association. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Chicago, IL 60611, USA.

June 10-14: 2nd Iberian-Latin American Congress on Preventive Odontology & 2nd National Congress on Pediatric Odontology in Havana, Cuba. For more information, contact: Federacion Odontologica Latinoamericana, Calle 4, No. 407 entre y 19, Vedado, La Habana, Cuba.

June 14-17: The Third World Congress on Preventive Dentistry in Fukuoka, Japan. For information, contact: Secretariat of WCPD '81, c/o Dept. of Preventive Dentistry, Faculty of Dentistry, Kyushu University 61, Higashi-ku, Fukuoka, 812 JAPAN.

July/Juillet 1991

July 4-6: Annual Conference of the British Dental Association in Manchester. Contact: British Dental Association, Conference Office, 64 Wimpole St, London W1M 8AL, England. Tel: (071) 935-0875. Fax: (071) 487-5232.

April/Avril 1991

April 2-5: Groupement des Associations dentaires francophones à Abidjan, Côte d'Ivoire. Pour toutes informations, veuillez vous adresser à Pr. JK Egnankou, Institut d'Odonto-Stomatologie, 22, D.P. 612 Adidjan 22, République de Côte d'Ivoire.

April 6-13: 27th International Alpine Dental Conference in Courchevel 1850 France. For more information, contact: International Dental Foundation, 53 Sloane St., London SW1X 9SW, England. Tel.: 071-235-0788.

April 12-13: International Orthotropic Symposium in Chicago. Contact: Gene Bonofiglio, Symposium Chairman, 630 – 36th St SW, Grand Rapids, Michigan 45903, USA.

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ALBERTA—Calgary: Established solo practice in one of Calgary's best areas. Three ops; OP105; fibre optics; etc. Last year's gross very high on 40 hour week (no weekends) with excellent return. Long term lease in place. Details available to qualified buyers. Asking \$275,000. Reply to CDA Box number 2508. (3-18/4)

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oriented practice in rural Alberta. Panorex, two fully-equipped operatories. Located in local medical clinic. Hospital privileges available. Owner relocating to pursue other business interests. Please reply in confidence to CDA Box 2504. (2-1/4)

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well-equipped ops, room for 4. Excellent hygiene recall program. Very high gross, very low overhead. Well-trained staff. Owner willing to assist in transition. Call (204) 339-3495 or 947-5505. (3-4/5)

ONTARIO—Ottawa: Central. Busy, adult practice (40 years). Attractively priced. Owner retiring. Call Dr. Metrick (613) 236-5621. (3-14/4)

ONTARIO—Ottawa: GENERAL DENTAL PRACTICE FOR SALE. Vendor pursuing post-graduate studies. Only your professional skill and enthusiasm is needed for the turnkey package offered by this practice. 1. Excellent location in a busy two-storey mall. 2. Modern, computerized, fully-equipped office with three operatories. 3. Established clientele with high gross revenue and moderate overhead. 4. Experienced support staff. 5. Full assistance to aid in transition. 6. Excellent potential for further growth. This is a superb opportunity for the dental graduate or associate wishing to set up an autonomous practice. For more information on this independently and professionally appraised practice, please call Sandra at (613) 596-6404 or Dr. Lazare at (613) 238-5302. (2-4/4)

ONTARIO—Ottawa: Dental office for sale. Large Office, very high volume. Very high gross. Suitable for 2 or 3 practitioners. Owner would associate to introduce patient. Contact CDA Box 2505. (2-6/5)

ONTARIO—Southwestern: Busy, established family practice for sale in small town near Lake Huron. Modern 30' x 50' building, air-conditioned, 2 well-equipped operatories. Reception and business areas, lab, kitchen, bathroom, private office and staff room (or third operatory). Very competent, well-trained staff available with practice. Excellent income, low overhead. Please call (519) 482-5864. (12-6/2)

QUEBEC—Montreal: Dental clinic and laboratory for sale. Two operatories. Private parking with or without building. Front metro. Good gross. Latin, Spanish, English, French, Greek, etc. clientele. Owner may stay to introduce buyer. Please phone (514) 276-8884 or (514) 457-5542. (07-18/11)

NEW BRUNSWICK—Bathurst: Busy, established family practice for sale. Newly renovated office. 30 new patients per month with strong recall base. Owner leaving area and willing to negotiate price. Reply in confidence to CDA Box 2500. (07-14/13)

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ONTARIO—Burlington: Associateship with opportunity for future partnership in a modern, well-established and progressive practice. We offer a very pleasant working environment. Please call: Pauline at (416) 639-5102. (2-3/4)

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ONTARIO: BILINGUAL DENTIST 1980 Toronto Grad seeks associateship/partnership in bilingual preventive practice. Enjoys working with children. Three years hospital-based dental experience. Available Aug. 91. Returning from 4 years in Europe. CV and references available on request. Contact: Dr. Brian Eckert, Civilian Dental Clinic, CFPO 5000, Belleville, Ont. K0K 3R0. Tel: West Germany (049) 7823-1876. (3-20/3)

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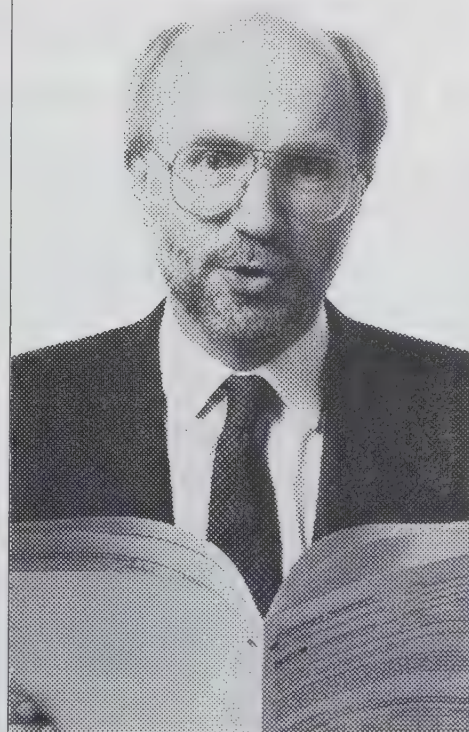
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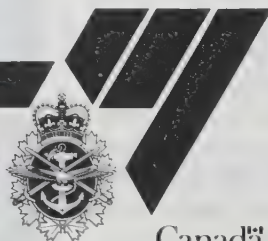
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Indications

Ultracaine is indicated for infiltration anesthesia and nerve block anesthesia in clinical dentistry.

Contraindications

Ultracaine is contraindicated in patients with a known hypersensitivity to local anesthetics of the amide group; in the presence of sepsis near the proposed injection site; in patients with severe shock; in patients with any degree of heart block; in patients with existing neurologic disease and in patients with severe hypertension.

When **Ultracaine** with epinephrine is used, the caution required of any vasopressor drug is in order.

Warnings

Methemoglobinemia

As with other local anesthetics, **Ultracaine** is capable of producing methemoglobinemia: this has been observed when an intravenous regional anesthesia technique is used. **Ultracaine**, when used as directed in dental procedures, was not associated with methemoglobinemia.

Usage in Pregnancy

Animal studies have not demonstrated teratogenic or embryotoxic effects of **Ultracaine**. However, safe use in pregnant women has not been established. **Ultracaine** is unlikely to be transferred to the mother's milk since it is rapidly decomposed and eliminated.

Precautions

Resuscitative equipment and drugs should be readily available when any local anesthetic is used. The safety and effectiveness of local anesthetics depend upon proper dosage, correct technique, adequate precautions and readiness for emergencies. **Ultracaine** should be used cautiously in persons with known drug allergies or sensitivities, or suspected sensitivity to the amide-type local anesthetics.

Patients with Special Diseases and Conditions

The p-hydroxybenzoic acid methyl ester contained in **Ultracaine**, as a preservative, has a hydroxy group in the para-position. This fact should be borne in mind in the case of patients with para-group allergy.

Adverse Reactions

Reactions to **Ultracaine** are characteristic of those associated with amide-type local anesthetics.

A major cause of adverse reactions to this group of drugs is excessive plasma levels, which may be due to overdosage, inadvertent intravascular injection, or slow metabolic degradation. Other causes of reactions to these local anesthetics may be hypersensitivity, idiosyncrasy, or diminished tolerance.

Dosage and Administration

As with all local anesthetics, the dosage varies and depends upon the area to be anesthetized, the vascularity of the tissues, the number of neuronal segments to be blocked, individual tolerance and the technique of anesthesia. The lowest dosage, needed to provide effective anesthesia should be administered.

	Infil- tration	Nerve Block	Oral Surgery
Ultracaine DS forte	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL
Ultracaine DS	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL

It is recommended not to exceed 7 mg/kg body weight in adults.

To date, **Ultracaine** has not been administered to children under 4 years of age, nor in doses greater than 5 mg/kg in children between the ages of 4 and 12.

Supply

Ultracaine D-S: 4% with epinephrine (1/200,000) and Ultracaine D-S forte: 4% with epinephrine (1/100,000) are available in 1.7 mL cartridges, box of 50 cartridges.

Product Monograph available on request.

References:

1. Dudkiewicz A, Schwartz S, Laliberté R: Effectiveness of Mandibular Infiltration in Children Using the Local Anesthetic Ultracaine[®]. Canadian Dental Association Journal 1987; Vol 53 (No. 1):29-31.
2. Lemay H et al: Ultracaine in conventional operative dentistry. Journal of the Canadian Dental Association 1984; 50 (No. 9):703-708.

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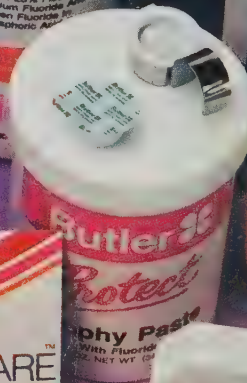
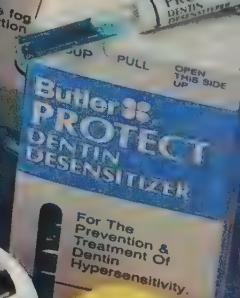
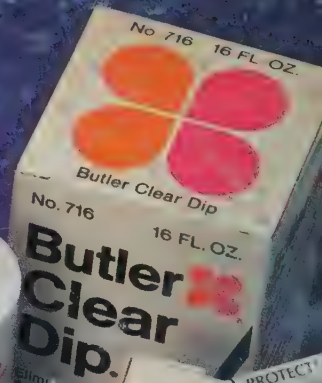
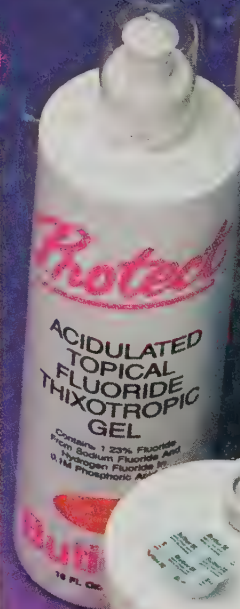
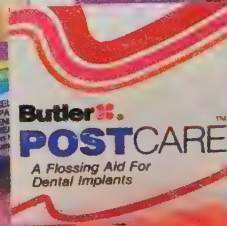
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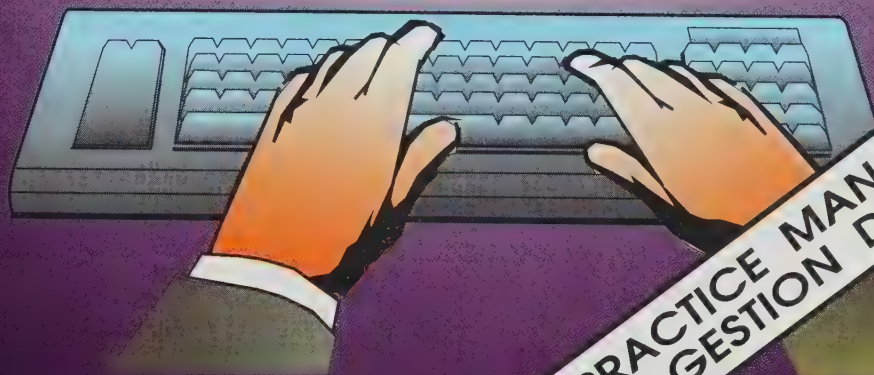
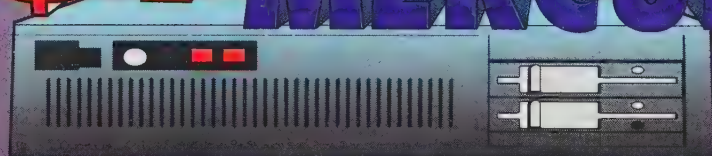
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April
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1991
Vol. 57
No. 4

JOURNAL
A

Canadian
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RETIREMENT
What to do?
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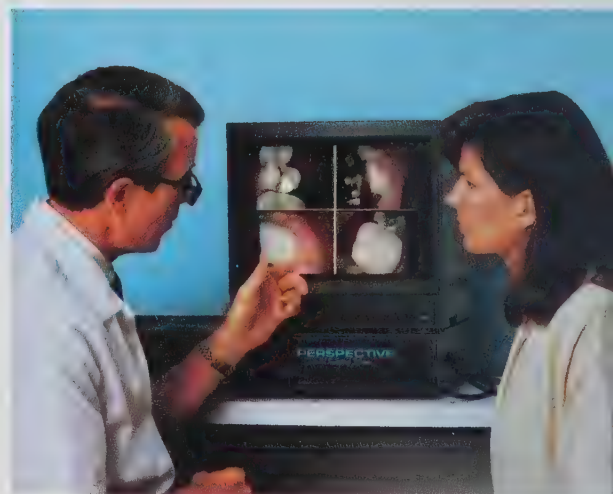
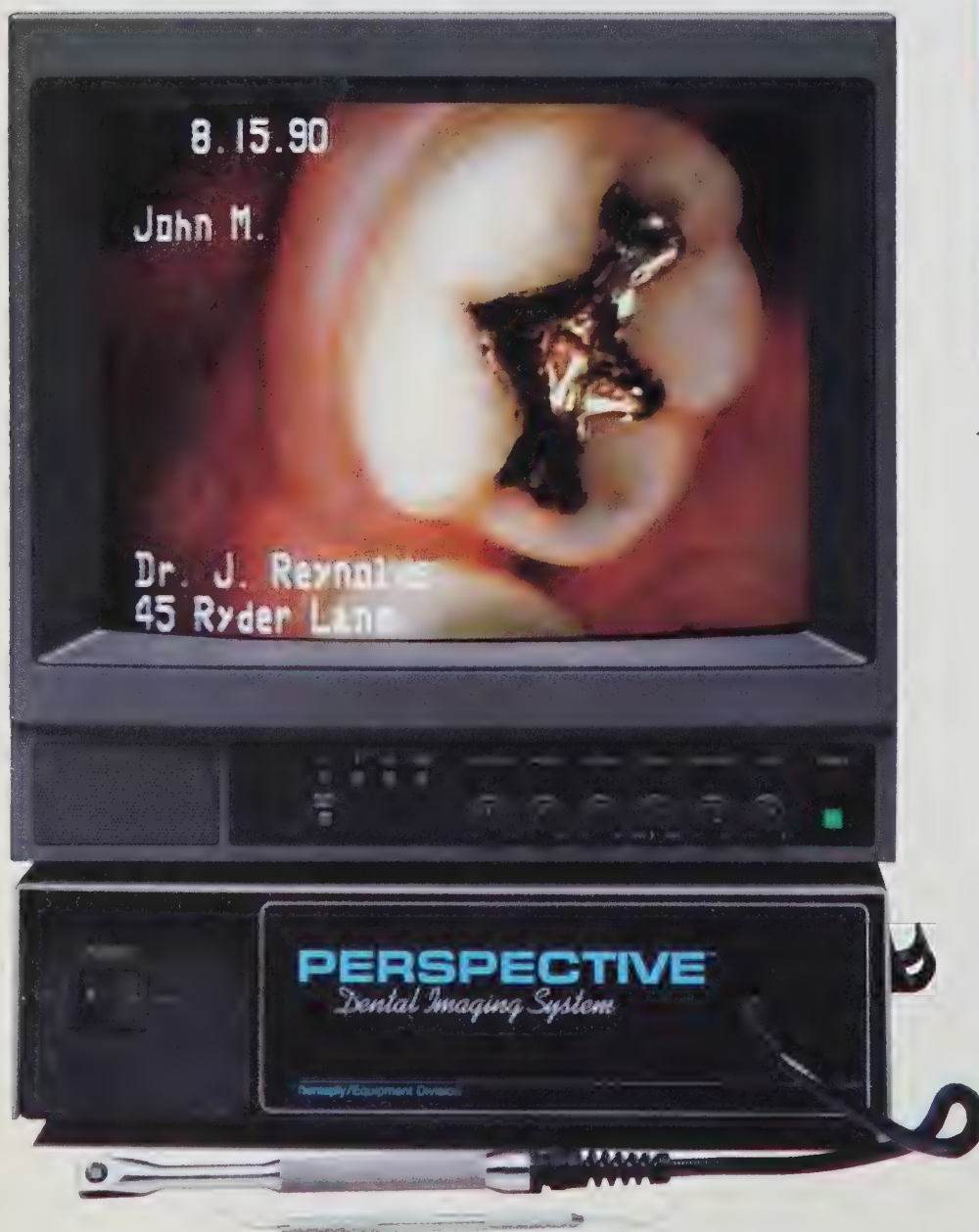
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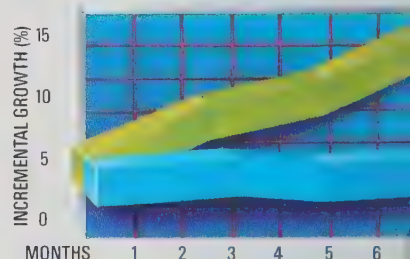
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April 1991

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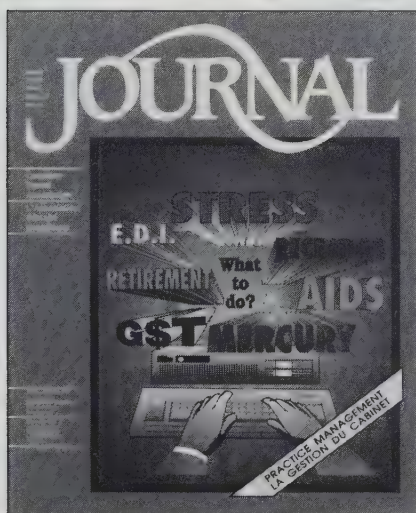
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This month's cover:
Factors influencing Dental Practice
Management.

(DESIGNED BY LOUISE DESPRÉS-JONES)

JOURNAL

All the dental information the world has to offer

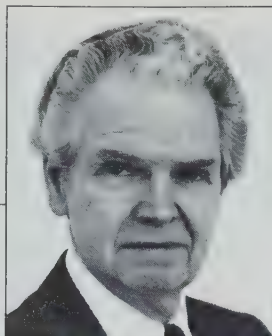
...comes to you
through the

Four overlapping globes are arranged diagonally from the top left towards the bottom right. Each globe shows a map of the Americas (North and South America) in dark green against a light blue background representing the oceans. The globes are slightly offset from each other, creating a sense of depth.

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As Easy As One-Two-Three?

Not long ago the *Journal* was reviewing its supplier contracts — typesetting, printing, mailing. Our publishing consultant made a statement that intrigued us. It was a business truism: *When seeking a new supplier, look for the three cardinal elements of success: quality, service and price. You may not get perfection for all three but make sure the balance produces optimal satisfaction for all concerned parties.*

We applied the advice and found it particularly helpful. Perhaps the price would be a little high in one company's proposal but their quality seemed better; another company certainly produced quality work but could not be depended upon in a sudden exigency; and so the process evolved. We ranged back and forth from tender to tender until we were satisfied we had settled on the best arrangement. Notice the words, "best arrangement" and not "perfection". Perfection is difficult in an imperfect world.

This particular issue of the *Journal* has as a theme, *Practice Management*. The material reveals each author's intent to introduce dentists to practical business precepts. The one-two-three principle of quality, service and price is as applicable and appropriate to dentistry as to any other entrepreneurial enterprise. It seems inconceivable that a dentist would attempt practice without some thought to good business principles. However, practice consultants tell us that all too often the balance is askew.

New graduates quickly become aware that there are requirements in dental practice that were not taught in dental school. However, every dental faculty which we are aware of certainly stresses quality. Our Canadian dental colleges' teaching methods, varied as they are, make every attempt to instill discipline into all achievable standards. What contributes to less than acceptable techniques and sloppy procedures amongst a small minority of dentists will always be a mystery. We have asked registrars and complaints committees and have never found a complete answer!

Service is more complex. It is a strange mixture of a willingness to please and an innate efficiency, friendliness and insight. Realistically, not every dentist can exquisitely carve anatomical perfection, nor precisely place an endodontic filling within a targeted tenth of a millimetre, but surely, it shouldn't require monumental skill to be kind to a fellow human being.

Kindness, patience, and understanding is what service is all about! There is no place in a dental practice (or anywhere), for an impolite telephone response, an inordinate wait in an unfriendly reception area, inappropriate scheduling, and unsatisfactory treatment encounters.

Price, the third tenet of the business triad, surely requires more than strict adherence to provincial fee guides. It demands special consideration for every single treatment mode. Despite fee guides, insurance plans and dentists' personal aspirations, no two patients ever have the same dental requirements, financial resources, and ability to pay.

Complaint and Mediation Committees consistently report that disputes regarding dental fees are near the "top ten" of the complaint charts. They also report that if more dentists would talk to their patients about fees and procedures, carefully explaining the complexities of assessing responsibility, there would be far fewer phone calls ringing on registrars' desks. The intricacies of third-party payments (deductibles, co-payment, assignments, maximum annual allowances, etcetera), must be bewildering to a layperson. To dismiss patients with a curt, "that's our fee," without explanation is just not acceptable.

Is quality, service and price as easy as one-two-three? We doubt it, but who ever said operating a dental practice is problem free! Seriously though, the recognition of good business principles combined with kindness, compassion and understanding is not that difficult!

P. Ralph Crawford, BA, DMD

Editor: the Journal of the Canadian Dental Association

President's Column



Advertising in Dentistry: Informed Choice or Self-Marketing?

The Supreme Court of Ontario, after a conscientious analysis, concluded recently that the Ontario regulation limiting advertising for dentists was unconstitutional.

As members of this profession, we have to be concerned by this judgement; its effects will reverberate all across the country.

All the provincial licensing bodies are currently reviewing their regulations in view of this situation. The new Guidelines would have to be consistent with the principles clearly emerging from, and fundamental to, the Court's decision. . . .

1. It is in the public interest to disseminate relevant information (advertising) to the general public in order to allow them to make informed choices relative to their dental needs.
2. The licensing bodies have a legitimate interest in controlling the conduct of their members relative to advertising in order to protect both the public and the professionalism of dentistry.
3. All advertising will have to meet certain basic criteria to ensure both that professional standards and the welfare of the public are maintained. Such information made public for the purpose of enabling consumers to make informed choices is one of these basic criteria.
4. Professional advertising should never actively solicit patients to be patrons of a particular dental practice. Its content must not contain any false or misleading information, or make deceptive statements or claims.

In general, advertising must not, whether as a result of its content or the manner or frequency of dissemination, diminish the integrity of the dental profession.

Nevertheless, even though the Ontario Supreme Court concluded that commercial speech is protected by the Charter of Rights, we, as dental professionals, should further ensure that the public is protected and that professionalism is maintained.

Our licensing bodies will fulfill their part of this mandate in reviewing their advertising Guidelines. But, in my opinion, that is not the complete answer to the problem.

As much as an organized profession attempts to regulate itself and/or enforce such regulations, it is essentially the behaviour of its individual members that is the true litmus test of successful adherence to standards. The Guidelines, Statements, or Policies of any profession or enterprise are always vulnerable to the courts precisely because they lack the force of law, though perhaps not its moral force.

We hold the integrity of our profession in our hands. We can influence the future of dentistry. Personally, I am convinced that external advertising or self-marketing is not cost-effective.

If you really want to increase the volume of your dental practice, improve your **internal** marketing. Communicate more with your patients **and** with your staff. Give **them** the information they need to make an informed choice.

In the months and years ahead, each and every one of you will have choices to make. Our ultimate goal, however, should be to ensure that the public is protected, not patronized, and that the professionalism of dentistry is upheld, not commercialized.

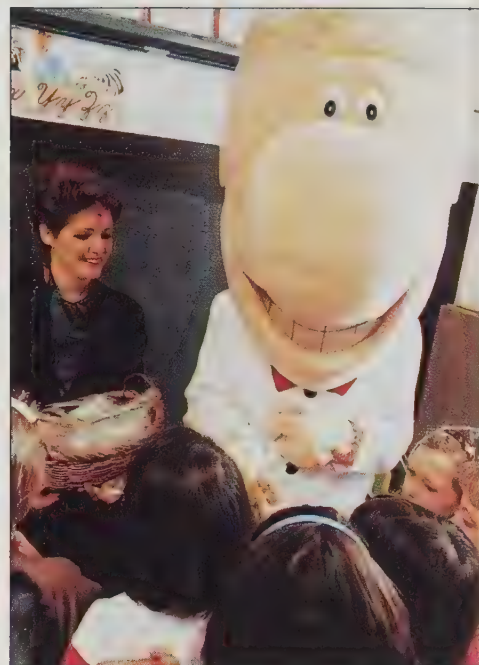
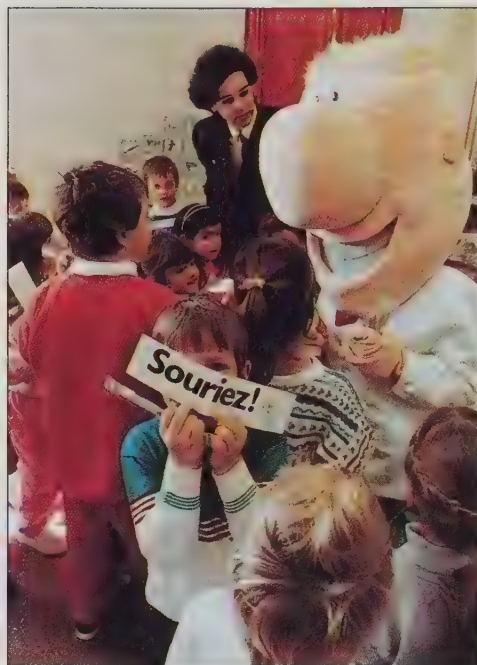
*Gilles Dubé, DMD, MSc, Admin. Santé
President of the Canadian Dental Association*

“Live Bob” Goes to School!

As part of his busy Dental Health duties, “Live Bob” paid a visit to the Kindergarten and Grade Three students at Préseault School in Orleans, Ontario.

Assisting Bob in demonstrating *Dental Health is Good for Life* are Suzanne Burton and Luc Pinard from CDA’s Ottawa headquarters.

“Live Bob” extends a special thanks to Mr. Dan Descary of the John O. Butler Company in Toronto for providing toothbrushes for everyone. Δ



Drugs Directorate Publications and Guidelines

The Health Protection Branch of Health and Welfare Canada has made available current lists of publications and guidelines of interest to health care workers.

Publications

1. First Report — Expert Advisory Committee on Nonprescription Cough and Cold Remedies
2. Second Report — Expert Advisory Committee on Nonprescription Cough and Cold Remedies
3. Third Report — Expert Advisory Committee on Nonprescription Cough and Cold Remedies
4. Report on SI CONVERSION in Parenteral Therapy and Nutrition
5. Executive Summary
6. Risk-Benefit and Quality of Life Analyses of Prescription Drugs
7. Risk Perception and Drug Safety Evaluation
8. The Control of Psychoactive Substances in Canada (reprint)
9. Your Assurance of Sale and Effective Veterinary Drugs
10. International Symposium on Drug Safety
11. Drugs Directorate Booklet
12. First Report — Expert Advisory Committee on Bioavailability of Oral Dosage Formulations of Drugs Used for Systemic Effects — Report A: Drugs with Uncomplicated Characteristics
13. Second Report — Expert Advisory Committee on Bioavailability of Oral Dosage Formulations of Drugs Used for Systemic Effects — Report B: Modified Release Dosage Formulations
14. Guidelines for the Secure Distribution of Narcotic and Controlled Drugs in Hospitals
15. Report of the Expert Advisory Committee on Amino Acids

The above publications are available free from:
Health and Welfare Canada
Communications Branch, Publications
19th Floor, Jeanne Mance Building
Tunney's Pasture, Ottawa, Ontario
K1A 0K9
Telephone enquiries: (613) 952-9191

Guidelines

1. Labelling of Drugs for Human Use
Catalogue No. H42-2/2-1989

2. Product Monographs
Catalogue No. H42-2/12-1989
3. Good Manufacturing Practices,
3rd edition
Catalogue No. H42-2/1-1989
4. Conduct of Clinical Investigations
Catalogue No. H42-2/14-1989
5. Glossary of Terms
Catalogue No. H42-2/18-1990
6. Executive Summary* — Further
requests through Communications
Branch.
No Catalogue No. — Free of charge
7. Canadian Drug Identification Code —
15th Edition
Catalogue No. H42-1/1-1989

8. Completing an Application for Registration as a Proprietary Medicine
Catalogue No. H42-2/25-1990
9. Homeopathic Preparations: Application for Drug Identification Numbers
Catalogue No. H-42-2/21-1990
10. Toxicological Evaluation
Catalogue No. H42-2/15-1990
11. Disinfectants: Preparation of Application for Drug Identification Number
Catalogue No. H42-2/22-1990
12. Traditional Herbal Medicines
Catalogue No. H42-2/36-1990
13. Manufacture and Testing of Monoclonal Antibodies and Their

Health Protection Branch Communication

Product: *Vitek Temporomandibular Joint (TMJ)
Interpositional Implant (IPI) — all lots*

Manufacturer: *Vitek Inc., Houston, Texas, U.S.A.*

Importer: *Instrumentarium, Terrebonne, Québec*

The Health Protection Branch (HPB) wishes to ensure that every dental surgeon concerned is made aware of the following **Voluntary Safety Alert** issued by Vitek Inc. in 1990.

In Canada, the Vitek Temporomandibular Joint (TMJ) and Interpositional Implant (IPI) were imported and distributed by Instrumentarium and they have cooperated with HPB in ensuring that all of their accounts and clients were made aware of the Safety Alert and subsequent product recall. In the event that you may have purchased either of these products **directly** from Vitek Inc., or have not been made aware of the recall, the following information will be of particular importance:

- For Un-used products purchased/imported directly from Vitek Inc. — return to:

Bonham, Carrington and Fox
Bankruptcy Trustee for Vitek Inc.
400, One Shell Plaza
Houston, Texas 77002

- For Un-used products purchased in Canada directly from Instrumentarium — return to:

Instrumentarium
1273 St-Louis
Terrebonne, Québec, Canada
J6W 3L5

The **Voluntary Safety Alert**, was issued by Vitek Inc. March 23, 1990, and is being reproduced for your information.

Conjugates

Catalogue No. H42-2/32-1990

14. Utilization of Continuous Cell Lines in the Manufacture of Biologics Catalogue No. H42-2/33-1990

15. Manufacture and Testing of Biologics Produced by Recombinant DNA Technology Catalogue No. H42-2/34-1990

The above guidelines are available at cost from:

Canadian Government Publishing Centre
Supply and Services Canada
Ottawa, Ontario

K1A 0S9

Order desk: (819) 956-4802 Δ

TMJ Implant Safety Alert Issued by H&W Canada

Outlined below is information received from the Health Protection Branch, Health and Welfare Canada, on January 28, 1991 regarding a **Voluntary Safety Alert** for a temporomandibular joint and interpositional implant.

The *Journal* is pleased to cooperate with the Health Protection Branch and has reproduced the documents exactly as received. Δ

VITEK, Inc.
Technology for Life

March 23, 1990

VOLUNTARY SAFETY ALERT

PRODUCT: *Vitek Temporomandibular Joint (TMJ) Interpositional Implant (IPI) — All Lots*

Dear Doctor:

The purpose of this letter is to inform you of the following reported concerns which affect the Vitek TMJ IPI. The corresponding product catalogue numbers are 912.71, 912.72, 912.74, 912.76, 912.77 and 912.78. Vitek's IPI's may fragment, delaminate or otherwise be damaged or punctured. Debris in the joint from alloplastic implants can contribute to progressive bone degenerative changes and to giant cell creation. All patients, including asymptomatic patients, should be monitored closely to assure proper patient maintenance. This monitoring should include clinical and radiographic examination. The radiographic examination may include transcranial or tomographic x-rays, CAT scans or bone scans.

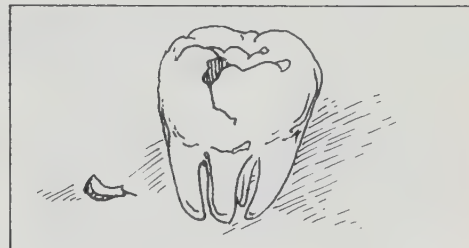
As you know, the 1984 AAOMS criteria for meniscus surgery recommends continuing postsurgical follow-up. Because it is often difficult to distinguish between normal bone remodeling changes that can occur and long-term extensive bone resorption in presently asymptomatic patients who have received alloplastic implants such as the TMJ IPI, it is strongly recommended that these patients be followed indefinitely. Please inform all your patients who have received a Vitek IPI of the importance of follow-up.

The prophylactic removal of Vitek's IPI is not recommended.

Additionally, do not implant any more of these devices if you have any of them in your possession. These implants should be returned for credit. Return these implants to the address below in their original boxes with (if available), a copy of the corresponding shipping memorandum.

From the Dentaletter

Tooth Fractures



An endodontically-treated posterior tooth has a higher risk of fracture than a vital one because of more extensive preparation that increases cuspal deflection. *In vitro* and *in vivo* studies suggest fracture resistance is increased if teeth with MO/DO or MOD cavities are restored with enamel-bonded resin rather than amalgam.

A retrospective study on the cumulative survival rate and fracture characteristics was carried out on 190 endodontically-treated posterior teeth restored with a composite resin without cuspal overlays after previous acid-etching of the enamel. Analysis of the data resulted in the following conclusions and recommendations:

- The acid-etch resin technique may be a better option than amalgam especially for MOD cavities.
- Light-activated resins must be polymerized properly — 60 seconds per increment.
- Increments in the proximal part of the cavity should be less than 2 mm thick.
- Microfill resins intended for anterior use should not be used in posterior restoration.
- The acid-etched enamel should be covered with an intermediate layer of low-viscosity bonding resin.
- Beveling the cavo-surface margin does not improve the survival rate of posterior teeth restored with the acid etch resin technique. Δ

Hansen, E.K., Asmussen, E. *Endod Dent Traumatol* 6:218-225, 1990.

Special thanks to **THE DENTALETTER**,
January, 1991.

Providing about 25 concise summaries in each eight page issue THE DENTALETTER keeps dentists' clinical knowledge up to the minute with only a 1/2 hour of reading per month. For subscription information contact 133 Richmond St. W., Toronto M5H 3M8, telephone (416) 869-1777.

Dr. Crawford Bain Awarded Fellowship

Dr. Crawford Bain of Dalhousie University, Halifax, Nova Scotia has been awarded the Branemark Surgical Implant Fellowship at the Dental Implant Center, University of California, Los Angeles. Dr. Bain is spending one year of full-time study, research and clinical practice in the field of Oral Implantology. His main area of research is an analysis of factors which may predispose to implant failures. Dr. Bain, who is an Associate Professor of Periodontics at Dalhousie University, previously received Post-Graduate Certificates in Periodontics and Fixed Prosthodontics, and a Master of Science degree from the University of Pennsylvania. He is the first North American and the first periodontist to be awarded this Surgical Fellowship. On completion of his studies, Dr. Bain will return to practice and teaching in Halifax. △

From the Dentaletter

Porcelain and Resin Veneers

The veneering of teeth is rapidly increasing in popularity. Laboratory-fabricated veneers have received the most attention in the past few years. In this 2-year longitudinal study, comparative performance of porcelain and acrylic veneers is reported.

Forty-four porcelain (Vita dur:Vita), and 44 urethane acrylic (Isosit: Ivoclar) veneers were placed in 16 patients; most (69) veneers were on maxillary anterior teeth. A diamond bur was used to reduce the labial surface by 0.5 mm and a 1 mm chamfer margin was produced approximately 1 mm above the gingival margin and just facial to the proximal contacts. Maxillary tooth preparations included an incisal bevel but mandibular preparations did not extend to the incisal edge. Both veneer types were used in all but one patient. Polysiloxane impressions were taken and the two types of veneers processed at the same dental laboratory. Both porcelain and resin veneers were placed with compatible resin cements (Heliolink and Dual; Ivoclar). Photographs and impression for SEM evaluation were taken at baseline, 1 year and 2 years.

At the end of 2 years, all the original veneers were indistinguishably comparable aesthetically and with regard to mar-

ginal integrity. Nine of 36 resin veneers had chipped or fractured in 6 subjects. None of the porcelain veneers failed. Porcelain veneers used for replacement of resin veneers had not failed by the end of the 2-year study period. △

Rucker, L.M. et al. *J Amer Dent Assoc.* 121: 594-596, 1990.

Special thanks to **THE DENTALETTER**,
January, 1991.

Providing about 25 concise summaries in each eight page issue **THE DENTALETTER** keeps dentists' clinical knowledge up to the minute with only a 1/2 hour of reading per month. For subscription information contact 133 Richmond St. W., Toronto M5H 3M8, telephone (416) 869-1777.

“WHATSIT?”

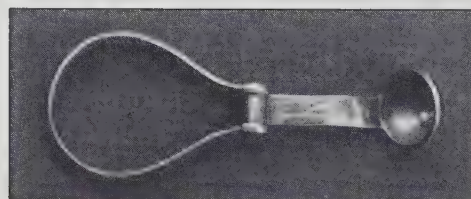
Help the CDA Museum Identify an Artifact from Yesteryear

Constructed of steel, the short, cupped tip is adjustable by setting the adjusting screw on the end of the handle.

(Write to Dr. Ralph Crawford, Journal Editor, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6.)

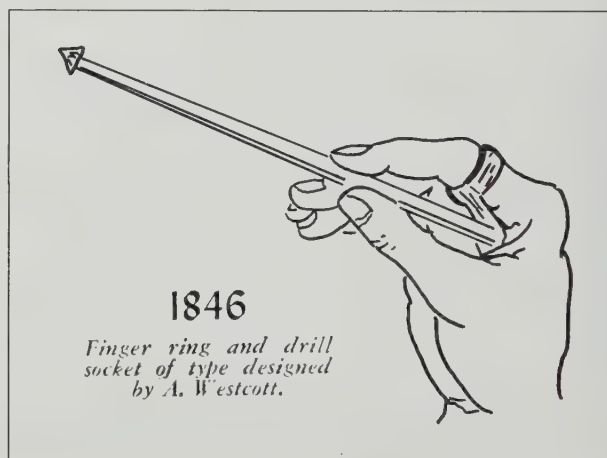


JANUARY “WHAT’S IT?” SOLVED



Although a dozen replies were received suggesting the instrument was a carrier/receptacle for amalgam, silicate, and prophyl-paste, the **one** correct description came from **Dr. Anne Dale**, of the University of Toronto.

Dr. Dale explained that the instrument is a **finger thimble** used to stabilize a long-handled dental bur, prior to the invention of the mechanical dental engine by James Morrison in 1872.



1846

Finger ring and drill
socket of type designed
by A. Westcott.

Past President of Manitoba Dental Association Passes Away

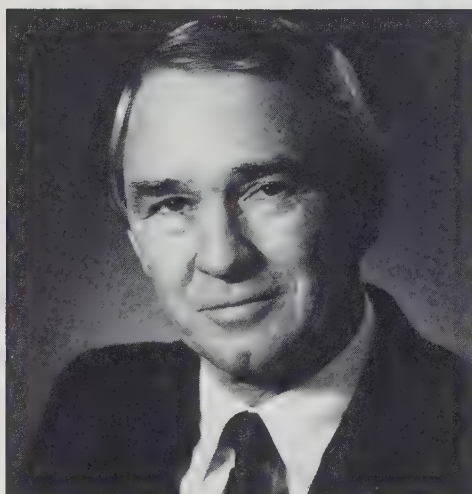
Dr. Walker Shortill, president of the Manitoba Dental Association in 1979-1980, and prominent figure in dental practice administration, passed away suddenly in Victoria, B.C. where he had retired in 1980. He was 87 years of age.

Born and raised in Winnipeg, Manitoba, Dr. Shortill saw service in the Second World War as a Naval Sub-Lieutenant. He graduated in Science from the University of Manitoba in 1947 and this Spring was looking forward to celebrating his 40th anniversary of graduation from Toronto's Faculty of Dentistry.

He practised in Winnipeg for most of his dental career and was instrumental in the founding of the Assiniboine Dental Group in the mid 1960's. Intensely interested in dental practice management, he pioneered the modern concepts of group dental practice and auxiliary based preventive dentistry. When the University of Manitoba Faculty of Dentistry was founded in 1958, Dr. Shortill was one of the original part-time staff members. He was widely known in Canada for his lectures in practice management, was a contributor on a number of occasions to the *Journal of the Canadian Dental Association* and in latter years, was prominent as a dental consultant in practice management and retirement transition.

A diligent worker in dental association affairs Dr. Shortill was past president of the Winnipeg Dental Society and the Manitoba Dental Association. His presence on the Board of the *Manitoba Dental Association* during the negotiations for the implementation of the Manitoba Government's Children's Dental Health Care Plan contributed significantly to upholding the principle that the dental profession's input was not only necessary but mandatory.

He had served notably on several committees of the *Canadian Dental Association* lending his expertise on dental auxiliary utilization and practice management. Always willing to lend a hand to his fellow man he actively participated in the community affairs — in the YMCA, Chamber of Commerce, Kiwanis Club, United Way and Church.



Walker Shortill, BSc, DDS

A Fund in Dr. Shortill's memory has been established at the Faculty of Dentistry, University of Manitoba, towards support of a program in dental practice administration. Donations may be sent to the University of Manitoba, Faculty of Dentistry, 780 Bannatyne Avenue, Winnipeg, Manitoba, R3E 0W2, c/o Dr. Robert Baker. Δ

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	February 28, 1991	January 31, 1991
Bond & Mortgage Fund	81.07083	79.68076
Common Stock Fund	16.68901	15.83020
Money Market Fund	54.93825	54.49298
Balanced Fund	31.82842	30.70854

G.I.C. Fund

Term	*Interest rates as at	
	February 28, 1991	January 31, 1991
1 yr	9.75%	10.30%
2 yr	9.90%	10.30%
3 yr	10.10%	10.30%
4 yr	10.10%	10.35%
5 yr	10.10%	10.30%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

February 28, 1991	January 31, 1991
\$136,592,916.60	\$130,845,642.30

For further information:



CDA RSP

Write:

CDSPI

Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117

Did you know?

Don't Drink and Chew This Gum at the Same Time

For the 50 million Americans addicted to cigarette smoking, help can come in the form of nicotine polacrilex gum, available by prescription from a dentist or physician.

Chewing the gum causes it to release small amounts of nicotine into the mouth, where it is absorbed and then enters the bloodstream. That in turn allows a smoker to wean from cigarettes gradually rather than "cold turkey."

The product's benefits depend on the absorption of nicotine through the lining of the mouth. Drinking coffee — a common habit among smokers and ex-smokers — can block the absorption process. So can cola drinks, say researchers at the National Institute on Drug Abuse Addiction Research Center.

In tests, researchers found that both coffee and cola rinses, unlike water, stopped the entry of any nicotine into the blood.

Coffee, cola and other beverages make the saliva acidic, rendering the nicotine from the gum "unavailable" because the mouth cannot absorb the drug in an acid environment. Jack E. Henningfield, PhD of the Center says for the most efficient absorption of nicotine, it's best to wait at least 15 minutes after eating or drinking anything before chewing the gum.

Nicotine gum users should also note that it's a good idea to chew one piece or two before drinking coffee or juice in the morning — a time when the need for a nicotine fix appears to be especially strong.

Dental Home Care That Works

Manual methods for plaque removal are not being utilized effectively, write Joe E. Dunlop, DDS in *Dentistry Today*, December 1990.

Dunlop notes that in a recent survey, 73% of the anonymous respondents indicated they spend three minutes or less per day on home care. Even among patients who had been through a non-surgical periodontal program, 68% reported spending three minutes or less per day on home care.

Where there is a will. . .

Throughout a lifetime most of us have supported causes and institutions that appeal to us. Our moral and financial aid means a great deal to the organizations we choose to help.

Many people feel a desire to extend that support beyond their lifetime. A deferred gift — a once-in-a-lifetime gift — can often be made by carefully preparing now with proper estate planning.

Where there is a will, there's a way to ensure your estate will be distributed exactly in accordance with your wishes. Naturally your family and friends deserve your first attention and their future must be looked after. But what about the balance of your estate — the remainder over and above the needs of your loved ones and friends?

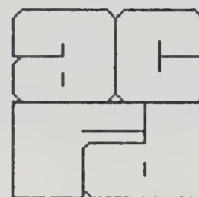
Please consider a bequest that will benefit your chosen profession. It can be in the form of an unrestricted gift or an endowment. After all, your will is uniquely personal.

For further information or assistance write to:

Canadian Fund for Dental Education
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
Tel: (613) 731-0493



CFDE/CDA Teaching Conference Call for Topics



Suggestions for possible topics for future CFDE/CDA Teaching Conferences should be submitted to Dr. Jack Gerrow, Chairman, Faculty Member Development Committee, Dalhousie University, Faculty of Dentistry, 5918 University Avenue, Halifax, Nova Scotia, B3H 3J5 prior to May 15, 1991. These suggestions should be accompanied by a brief outline of the topic and proposed participants. Suitable topics will be presented to the CDA Council on Education meeting in June 1991 by the ACFD for consideration. A topic for the 1992 CFDE/CDA Teaching Conference will be the priority at this Council meeting. However, future topics are most welcome and we would encourage you to make as many suggestions as you feel warrant consideration.

Successful applicants will be notified following the Council meeting in June.

ACFD/AFDC
Central Office

Obituaries/Nécrologie

Desaulniers, L.: Diplômée de la Faculté de médecine dentaire de l'Université de Montréal en 1975, le D^r Desaulniers exerçait sa profession à Laval, Québec.

Faulkner, J.A.: Dr. Faulkner graduated from the Faculty of Dentistry at the University of Toronto in 1943. He practised his profession in Brampton, Ontario.

Hallman, C.R.: Dr. Hallman was a graduate of the North Pacific Dental College in Portland Oregon in 1927. He was a Life Member of the Canadian Dental Association.

Lackie, F.C.: Dr. Lackie was a graduate of the University of Toronto in 1942. He was a Life Member of the Canadian Dental Association and an Honourary Member of the Canadian Association of Periodontology.

Lepage, G.: Diplômé de la Faculté de médecine dentaire de l'Université de Toronto en 1962, le D^r Lepage exerçait sa profession à Lévis, Québec.

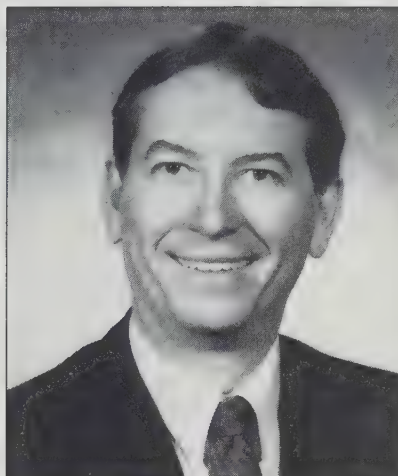
McNeill, E.: Mr. McNeill was a dental technician at the University of Alberta Faculty of Dentistry, who awarded him an honorary degree in dentistry. He served in No. 3 Company Canadian Dental Corps from 1939 to 1945.

Rosen, L.J.: Dr. Rosen graduated from McGill University in 1922 and practised dentistry in Montreal. He was a Life Member of the Canadian Dental Association.

Spinks, G.W.: Dr. Spinks was a graduate from the Faculty of Dentistry at the University of Toronto in 1933. He was a Life Member of the Canadian Dental Association.

Waterhouse, D.W.: Dr. Waterhouse graduated from the University of Toronto, Faculty of Dentistry in 1945. He practised in Guelph, Ontario. He was a Life Member of the Canadian Dental Association.

Dr. Tom Breneman elected President Manitoba Dental Association



Dr. Tom Breneman

Dr. Tom Breneman was installed as President of the Manitoba Dental Association at the 107th Annual Meeting of the Association in January.

Dr. Breneman graduated from the University of Manitoba Faculty of Dentistry in 1969 and since then has practised dentistry in Brandon, Manitoba. He has served on the MDA Board of Directors since 1988 and was the Association Vice-President in 1990. Dr. Breneman is actively involved in the profession and the community; he currently serves on the Board of the Kinsmen Seniors Cooperative in Brandon and as chairman of the St. Augustine Parish Council. Recent past positions include: president of the Western Manitoba Dental Society; national president of the Association of Kinsmen Clubs; chairman of the Western Manitoba Library Arts Center; board member of the Brandon and District United Way; and St. Augustine Parish Council.

Others on the Manitoba Dental Association Board for 1991 are:

Dr. Heinz Scherle	— Selkirk	— Vice-President
Dr. Marshall Peikoff	— Winnipeg	— Past President
Mr. Allan Bishoff	— Winnipeg	— Appointee, Minister of Health
Dr. Jan Brown	— Winnipeg	— Elected Board Member
Dr. Mark Buettner	— Winnipeg	— Elected Board Member
Dr. Tom Dobbs	— Winnipeg	— Elected Board Member
Mrs. Kim Legary	— Winnipeg	— Auxiliaries Representative
Dr. Ron Monczka	— The Pas	— Elected Board Member

Wright, L.E.: Dr. Wright graduated from the University of Alberta in 1968. She practised in Edmonton, Vancouver and, more recently, with the Academy Dental Group in Edmonton.



25 Canadian Dentists Inducted as Fellows of the American College of Dentists

Last October, in Boston, Mass., 25 Canadian dentists were invited to become Fellows, of the American College of Dentistry. The objective of the College, which celebrated its 70th Anniversary is "to promote the highest ideals in health care, advance the standards and efficiency of dentistry, develop good human relations and understanding, and extend the benefits of dental health to the greatest number."

The new inductees join 87 Canadians who are among the College's 5,835 members from around the world.

The 1990 Fellows are:

Dr. Marc Boucher
Quebec City, Quebec

Dr. John E. Eisner
Halifax, Nova Scotia

Dr. Bradley W. Holmes
Kenora, Ontario

Dr. Albert F. LaBounty
Kelowna, B.C.

Dr. Franklyn W. Lovely
Halifax, Nova Scotia

Dr. Patricia A. Main
Toronto, Ontario

Dr. Bruce McAlpine
Vancouver, BC

Dr. Fredrick I. Muroff
Montreal, Quebec

Dr. Kevin L. Roach
Pembroke, Ontario

Dr. Edward G. Sonley
Don Mills, Ontario

Dr. William Ian Vogan
Halifax, Nova Scotia

Dr. Philip A. Watson
Don Mills, Ontario

Dr. Donald G. Woodside
Willowdale, Ontario

Dr. Douglas A. Eisner
Halifax, Nova Scotia

Dr. Roger L. Ellis
Burlington, Ontario

Dr. Ronald E. Jordan
Winnipeg, Manitoba

Dr. Norman Levine
Toronto, Ontario

Dr. James H. Main
Toronto, Ontario

Dr. Ron J. Markey
Richmond, BC

Dr. Stephen Miller
Montreal, Quebec

Dr. Colin Price
Vancouver, BC

Dr. Stephane Schwartz
Montreal, Quebec

Dr. Donald C. Steeves
Moncton, New Brunswick

Dr. Redvers C. Warren
Toronto, Ontario

Dr. Raymond D. Wenn
Charlottetown, P.E.I.

Multiple Sclerosis

Carnation Campaign

Make a donation...
wear a carnation...
in May!

Your support will bring hope to the 50,000 Canadians who face the challenges of living with multiple sclerosis.

So far there's no known cause or cure for this mysterious disease, which can lead to loss of sensation, co-ordination or even paralysis.

With your help we can intensify our research efforts and increase services to those with MS and their families.

We're counting on your support. Show you care.

Make a donation.
Wear a carnation.



Multiple Sclerosis Society
of Canada

For more information, or to donate your time or money, contact your local chapter of the Multiple Sclerosis Society of Canada.

Help!

The *Journal* is short back issues for the months of
JULY, AUGUST, SEPTEMBER, 1990.

If you no longer need your issue, please do us a favour and
send it c/o The *Journal*, Canadian Dental Association
1815 Alta Vista Dr., Ottawa, Ontario K1G 3Y6

THANK YOU

TO OUR BUSINESS AND ASSOCIATION FRIENDS FROM THE CANADIAN FUND FOR DENTAL EDUCATION

A special appreciation to those companies and associations who contributed major gifts of \$1,000 or more to our 1990 campaign

HONORARY FOUNDERS \$25,000 or more

Colgate-Palmolive Canada
Canadian Dental Association
Dr. Lorne E. MacLachlan Charitable Trust

FOUNDING MEMBERS \$10,000 or more

Dentsply Canada Limited and Subsidiaries

PATRONS \$5,000 – \$9,999

Ash Temple Ltd.	Medi-Dent Service
Canadian Dental Service Plans Inc.	The NutraSweet Company
Warner-Lambert Canada Inc.	Wrigley Canada Inc.
Royal Canadian Dental Corps Association	

BENEFACTORS \$3,500 – \$4,999

Ontario Dental Association

SUSTAINING MEMBERS \$2,000 – \$3,499

Beavers Dental	Kerr Canada
Teledyne Water Pik Canada	

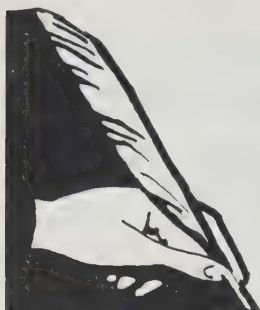
SUPPORTING MEMBERS \$1,000 – \$1,999

3M Canada Inc.	Dépôt Dentaire (Canada) Ltée.
A-DEC Inc.	& Healthco (Canada) Ltd.
Alberta Dental Association	Henry Schein, Inc.
Astra Pharma Inc.	Hoechst Canada Inc.
Aurum Cerum/Classic Dental	International College of Dentists —
Laboratories Canada	Cdn. Section
Canadian Dental Hygienists' Association	John O. Butler Company
Canadian Dental Supply Ltd.	Kodak Canada Inc.
College of Dental Surgeons of B.C.	Leeming/Paquin, Division of Pfizer
Confederation Leasing Limited	Canada Inc.
Dental Industry Association of Canada	Manitoba Dental Association
Dental Supplies Limited	Peace River & District Dental Society
	Royal College of Dental Surgeons of Ontario

The CFDE Trustees also wish to express their gratitude for the many smaller gifts received from various organizations. All corporate and association donors who have contributed \$100 or more are listed in the CFDE Annual Report and "Honour Roll" published with the Canadian Dental Association Journal in April.



CFDE wishes to express special thanks to the publisher of this publication for its continued support.



Amalgam in Germany

We received your telephone call concerning a television broadcast that reported the use of amalgam in dentistry would be stopped in the Federal Republic of Germany. As I told you by telephone, this information is incorrect. As promised, I am forwarding to you some documentation concerning this subject.

Please find enclosed this information in German, with an English abstract. Do not hesitate to contact us if you have further questions. Perhaps you could also include this information in your dental journal.

Marion Bader,
Federal Republic of Germany
Office for International Affairs

Mercury Concern

I am prompted to comment upon the recent letter and "information" packet that was sent to CDA members, in anticipation of the television program *60 Minutes* and its story on dental amalgam.

I am not a scientist or researcher. I am neither a biologist or pathologist, nor biochemist or immunologist. I practise general dentistry with what I believe to be a considerable degree of skill and caring toward my patients.

Mostly, however, I am an informed and careful consumer, who is concerned, as is an ever-growing number of people, about the toxic substances which we are exposed to on a regular basis. Our air and water are tainted with chemicals, most often beyond our personal control. Our food and drink are laced with toxins, often despite a high degree of vigilance towards what we choose to ingest.

Mercury is a known toxin. Even the dental profession, whose "bread and butter" for so long has been mercury-based, acknowledges this toxicity. "Don't touch it with your fingers — it goes right through the skin", we are

Abstract

In the Federal Republic of Germany approximately 37,8 million amalgam fillings are laid every year without any problems for millions of patients. However, there is a continuous, extensive discussion on potential health risks in connection with amalgam — respectively its mercury constituent. Due to a greater importance given to health and environmental problems in general, such more sensitive reactions of the public can well be understood and must be given special attention.

In this context the Institute of German Dentists has recently published the second edition of its documentation.

Amalgam — Pros and Cons.

In this publication, possible health risks emanating from dental amalgam and the arguments against the use of amalgam are carefully evaluated on the basis of expert opinions in the following fields: medicine, dentistry, toxicology, allergology, psychosomatic medicine and material sciences. The following conclusions can be drawn from the scientific studies and statements reported in the publication:

- Amalgam fillings contribute — in addition to the intake of mercury with normal daily food — to the total body burden of mercury; however, the level is far below a toxicological hazard.
- There are very rare allergic reactions related to amalgam therapy.
- A damage to the embryo caused by the placing, presence or removing of amalgam fillings can be excluded due to the very low amount of mercury released.
- So far, amalgam alternatives — especially in consideration of an increasing number of patients requiring esthetically favourable filling materials — do not fulfill all technical and material requirements for posterior teeth.

Amalgam is — now as before — a reliable filling material for restorations in posterior teeth. So far, suitable alternatives — also seen under economic aspects — are not available. Thus, it is important to further investigate the arguments for and against such alternatives without stirring emotions.

The publication "Amalgam — Pros and Cons" (Amalgam — Pro und Contra, edited by Institut der Deutschen Zahnärzte, ISBN-No. 3-7691-7820-3, Deutscher Ärzte-Verlag Köln, 1990) is obtainable at specialized booksellers'.

warned. "Don't breathe its vapours — it will build up in your tissues", we are cautioned. "But go ahead and use it in your patients' mouths — it's safe there", we are assured. No matter that it's under considerable masticatory stress in acidic fluids, with convenient portals entry being mucosal tissue and the respiratory and digestive tracts. "It's bound up with silver" we are reminded.

I have placed innumerable amalgams

over the past seventeen years; however, I can no longer in good conscience justify the placement of a mercury-based restorative material. It was disheartening to note the amount of energy expended in your recent mailing to us in an attempt to repudiate the Vimy study, as if to do so as convincingly as possible would reassure our members that there was little cause to be concerned about regarding the use of mercury.

How much dioxin is an "acceptable level" to ingest? Or PCB's? Or any pollutant, or contaminant, or poison, or harmful chemical, or mercury for that matter? Increasingly, the public is learning to mistrust professionals who appear to be diminishing the importance of these toxins as a health problem, and rightly so. Increasingly, patients are presenting for routine restorative treatment, and insisting they don't want mercury in their mouths. Some, as we know, are asking for removal of previously placed amalgam restorations.

The CDA "Position on Silver Dental Amalgam" states that "significant evidence of patient risk . . . has not been demonstrated . . . dentists are trained to be on their guard for these reactions. . .". I protest that these statements do not apply to me. What is the risk? And how much is significant? In other words, what are we looking for over the long term? Must a person develop Minamata disease before we say "I think there's a problem here"?

The CDA now has the opportunity to be in the progressive forefront of the profession and admit that the use of mercury as an intraoral restorative material leaves much to be desired, and much to be concerned about. I am convinced that if silver amalgam were introduced today for official acceptance as a dental restorative material, it would not get past the door. The fact that it has been used for 150 years in no way condones its continued use in light of our present awareness of toxins in the environment and the availability of other extremely good restorative materials. Rather than spending so much time repudiating studies, and giving us and our patients soothing reassurances, I would suggest that the CDA take the initiative in promoting the use of alternative materials before they are forced to do so by consumer pressure and ultimately, by legislation.

It's a lot more difficult to achieve a nice contour and tight contact with composite resin. It's a lot more time-consuming to

build up and light-cure a restoration layer by layer, but with practice and patience it's possible. Unless more dentists drop their attachment to amalgam soon, I predict that many will be "caught short" when the time comes that they are forced to do so.

I realize that this letter may bring derision from many dentists; however, I needed to speak my truth.

Lorne Berman, DDS
Sechelt, B.C.

Unscientific Bias

To most dentists, the report on the *60 Minutes* television show concerning health risks from dental amalgam was highly biased and sensational. Although I missed the program, I heard that observations were presented, but no controlled studies were completed. No attempt was made to do controlled studies over a sufficient period of time and with a large enough sample size to draw any meaningful conclusions. A few interesting observations can, of course, be merely chance occurrence and not meaningful associations. The only statement that can be made from simple empirical observations is that there is a suggestion of a problem, and that perhaps appropriate controlled studies should be done to test (disprove) various hypotheses. When proper controlled studies are completed, the ascertained quantitative epidemiological data can then be assessed in an unprejudiced manner by appropriate statistical analyses. We, as health scientists, should follow the scientific method, but a little cogent thought by the *60 Minutes* team would have demonstrated to them that no story exists, at least presently.

The event of the amalgam mercury scare brings in focus a dental myth that some of our colleagues fail to question due to their unique educational orthodoxies. These orthodoxies correspond to an early-on religious orientation or learned prejudice that bias us in ways that seem incomprehensible to those without our world view. The most conspicuous example in dentistry of an unscientific bias is the field of "occlusal adjustment." The dogma which many occlusal adjustment practitioners champion is that dental occlusion plays a role in oral disease. The suitably controlled studies that I am aware of that have been assessed by appropriate epidemiologic methods, clearly demonstrate that

occlusal adjustment, although frequently efficacious, plays no role in altering anything in the pathology of disease other than psychosomatic parameters. These psychological factors are no more important than many other ancillary variables, such as the care-giver's demeanor. When our colleagues maintain that their treatment has a functional biological/physiologic basis, they are in error. The arcane and, some would say, near metaphysical beliefs imputed to the role of occlusion in oral disease, the apparatus used in their treatment and theories espoused of a biological basis, are nonscientific and spurious.

It is inappropriate to teach nonscientific matters in a dental curriculum, at dental conventions or continuing education courses, when excellent science is available. I hope the correlation between our world view of the amalgam controversy can help us extrapolate these truths to our own untested beliefs about putative correlations between occlusion and disease. In both cases, the arguments can only be addressed and discussed from a sound scientific basis. Without good controlled studies, no statement of cause and effect can be made. As William Cowper stated in his poem "Tirocinium":

*To follow foolish precedents, and wink,
With both our eyes, is easier than to
think.*

I realize that some practitioners will dismiss any such debate by bringing up the old saw that you can make statistics say whatever you want. This is not true, unless you either do not understand the tests or the models you employ, or the biases in your data.

Part of the problem in dentistry that permits the maintenance of nonscientific beliefs, is the strong tendency to have empiricists among those giving lectures in continuing education courses and in philosophical authority of the clinical faculty of some dental schools. These very successful practitioners obviously emanate ample charisma and possess other attributes that improve their ability to be successful in the business of helping patients cure themselves. Their success with an advocated treatment modality, although very effective in "their hands" may, again, have no biological basis. To help segregate opinion from conclusions, please question such "experts" about the data upon which their beliefs are based. If we dentists insist on scientific rigor, we can vastly improve our image among the health science community;

more important, we can give better and more cost effective treatment to our trusting patients.

Edward D. Sheilds, DDS, PhD
Department of Oral Biology
McGill University
Montreal, Quebec

Selling Sipko?

Re: CDA Journal Feb. 1991. Vol. 57,
No. 1; p. 35.

I was astounded to find while browsing through the February 1991 issue of the *Journal*, the article entitled "THE SIPKOS, They Practice What They Preach." In your *alter ego* as *Journal* Editor, I thought you displayed a complete lack of editorial discretion in selecting this as an appropriate manuscript for publication.

It becomes clear very quickly that the article, which details the Sipkos' practice philosophy, is nothing more than an advertisement for Selection Research Inc. (SRI), a company of which Dr. Sipko is president. Phrases such as, "After the first eighteen months of incorporating the new (SRI) philosophy into their office, the Sipko gross income doubled. . .", and "Over the past ten years Bud and Karin Sipko have worked with 1500 dental offices. . ." could easily be found in a well thought out advertising campaign. While the Sipkos appear to operate a highly successful dental practice, your decision to publish this article demonstrates a standard of editorial quality which is unsatisfactory for professional publications such as the *Journal of the Canadian Dental Association*.

Ernest W.N. Lam, BSc, DMD
Vancouver, B.C.



It is becoming sad to be part of a profession where banalities of this sort are the subject of an article — moreover that this article merits publishing.

I challenge you and, for that matter, any dentist who claims to be grossing "close to a million dollars" in a three-day work week to make his production profile available, and to demonstrate that this million dollars is made by means acceptable to our code of ethics.

Only then would an article like this be credible and, perhaps, of some value.

Juan A. Tobias, DMD
Vancouver, B.C.

Editor's Note:

In publishing the Sipko story, it was our intent to portray how a Canadian dental office achieved success — if success can be measured in terms of fulfillment and satisfaction for all involved parties — dentist, staff and patient.

It was certainly not the Journal's intent to advertise Dr. Sipko's consulting company, just as it wasn't advertising to feature Wilson Southam of The Group at Cox in the October 1990 Journal issue. Our goal is to bring different practice philosophies to the attention of our readers.

FDI Singapore

In the January edition of the *Journal* we noticed your report on the FDI Congress in Singapore.

We thought that you may be interested to know that Le-Han Canada Inc. was amongst the 200 exhibitors mentioned, and we were the only exhibitors from Canada.

Being part of the Congress was an amazing experience — not only from a scenic and environmental viewpoint, but from a personal and humanitarian vantage point as well.

Leo Weil
President
Le-Han Canada Inc.

FIRST AID TIP



EYE INJURIES

Do not attempt to remove particles on the pupil or stuck to the eyeball. Other loose particles should be removed with care • Remove with a moistened corner of a tissue. • If this fails, cover the eye lightly with a dressing, cover the other eye to prevent movement and transport to medical aid.



St. John Ambulance

American Dental Association 132nd Annual Session Seattle, Washington



Scientific Session and Exhibits
October 5-8, 1991

Business Session
October 6-10, 1991

Contact:

American Dental Association
Council on ADA Sessions and International Relations
211 East Chicago Avenue
Chicago, Illinois 60611 USA

Hard-Tissue Grafts

Les greffes de tissus durs

1. Bowen, J.A. and others. "Comparison of decalcified freeze-dried allograft and porous particulate hydroxyapatite in human periodontal osseous defects." *Journal of Periodontology*. Dec. 1989; v. 60(12) pp. 647-54.
2. Enemark, H. "Long-term results after secondary bone grafting of alveolar clefts." *Journal of Oral and Maxillofacial Surgery*. Nov. 1987; v. 45(11) pp. 913-9.
3. Evans, G.H. and others. "Effect of various graft materials with tetracycline in localized juvenile periodontitis." *Journal of Periodontology*. Sept. 1989; v. 60(9) pp. 491-7.
4. Fenton, A.H. "Reconstruction of the resected mandible using titanium implants in a free vascularized graft." *Journal of the Canadian Dental Association*. Jun. 1989; v. 55(6) pp. 465-8.
5. Hillerup, S., Eriksen, E. and Solow, B. "Reduction of mandibular residual ridge after vestibuloplasty. A two-year follow-up study comparing the Eldan flap, mucosal and skin graft operations." *International Journal of Oral Maxillofacial Surgery*. Oct. 1989; v. 18(5) pp. 271-6.
6. Jennings, D.E. "Treatment of the mandibular compromised ridge: a literature review." *Journal of Prosthetic Dentistry*. May 1989; v. 61(5) pp. 575-9.
7. Kraut, R.A. and others. "Quantification of bone in dental implant sites after composite grafting of the mandible: report of a case." *International Journal of Oral and Maxillofacial Implants*. Summer 1989; v. 4(2) pp. 153-8.
8. Lukash, F.N. and others. "Long-term fate of the vascularized iliac crest bone graft for the mandibular reconstruction." *American Journal of Surgery*. Oct. 1990; v. 160(4) pp. 399-401.
9. Marshall, S.G. "The combined use of endosseous dental implants and collagen/hydroxylapatite augmentation procedures for reconstruction/augmentation of the edentulous and atrophic mandible: a preliminary report." *Oral Surgery Oral Medicine Oral Pathology*. Oct. 1990; v. 68 (4 pt 2) pp. 517-25; discussion 525-6.
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11. Mehlich, D.R. and others. "Histologic evaluation of the bone/graft interface after mandibular augmentation with hydroxylapatite/purified fibrillar collagen composite implants." *Oral Surgery Oral Medicine Oral Pathology*. Dec. 1990; v. 70(6) pp. 685-92.
12. Moenning, J.E. and Wolford, L.M. "Coralline porous hydroxylapatite as a bone graft substitute in orthognathic surgery: 24-month follow-up results." *International Journal of Adult Orthodontics and Orthognathic Surgery*. 1989; 4(2) pp. 105-17.
13. Ross, J.R. "Veneered osseous graft. Case report and technique." *Journal of the Tennessee Dental Association*. Jul. 1990; v. 70(3) pp. 14-6.
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15. Sanger, J.R. and others. "Sequential connection of flaps: a logical approach to customized mandibular reconstruction." *American Journal of Surgery*. Oct. 1990; v. 160(4) pp. 402-4.
16. Sussman, H.I. "Combined use of hydroxylapatite graft for ridge augmentation and orthodontic tipping for prosthetic alignment: a case report." *Compendium*. Jan. 1990; v. 11(1) pp. 42-3, 48-9.
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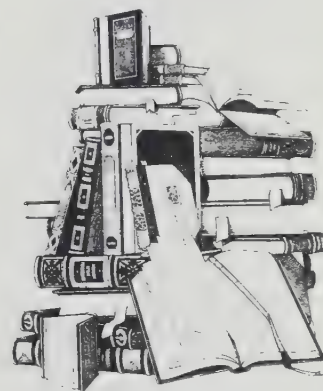
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Woodall, Irene R. et al. *Comprehensive dental hygiene care*, 3rd ed., St. Louis; Toronto: C.V. Mosby, 1989.



One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (G.S.T. and, Ontario residents, please include 8% sales tax.)

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SEDATION: A GUIDE TO PATIENT MANAGEMENT

S.F. Malamed

2nd Edition,
1989, C.V. Mosby Company,
603 pages, illustrations.

This soft-covered second edition text covers a wide range of techniques related to pain and anxiety control in dentistry. This book is divided into eight major sections which are further subdivided into 38 chapters. The major sections consist of an introduction and proceed into discussions on oral, rectal, intramuscular and inhalation sedation, as well as a section on intravenous sedation and general anaesthesia. The final two sections involve discussions on the handling of medical emergencies in the dental office (particularly those resulting from the use of sedation/anaesthesia), and finally, one entitled "Special Considerations". The individual chapters of this book consider topics from the history of sedation use in dental practice, to hypnosis, from pre-operative patient preparation and evaluation, to special considerations when handling pediatric, geriatric and other potentially medically compromised patients.

This edition does not differ greatly from the first edition text. There are discussions of some of the newer drugs and available monitoring equipment and some additional illustrations; however, the content is remarkably similar to the 1985 version. It is well-illustrated, and while not referenced directly in the body of the text, each chapter contains a rather complete bibliography with an extensive 20-page index at the end of the book.

This book attempts to cover an immense array of topics, drug regimes and techniques involved in delivering sedation and anaesthesia techniques to the dental patient. To this end, it is remarkably successful. The goals and objectives of each chapter are clearly defined by the author. The text is clear and complete, if not always totally concise. While the delivery is very technique-oriented and at times almost a "cook-book" approach, it really lacks in some of the basic science approach that this reviewer feels should be an integral part of a book attempting to cover so vast a subject. Despite these apparent inadequacies, this book should be on the list of "must reading" for anyone practising sedation techniques in the dental environ-

ment. The style and content are most suited to the undergraduate dental student or the general dental practitioner. The usefulness and indeed, the wisdom of including sections on general anaesthesia and some of the more sophisticated drug regimes and techniques in a text of this kind is, however, questionable.

This book was reviewed by:
Earle R. Young, BSc, DDS, BScD, MSc,
FADSA,
Assistant Professor of Anaesthesia,
Faculty of Dentistry,
University of Toronto,
and The Wellesley Hospital, Toronto.

AN ATLAS OF DENTAL RADIOGRAPHIC ANATOMY

Myron Kasle

1989, W.B. Saunders Company. Philadelphia.
295 pages, B & W illustrations

In the first section of his book, Kasle focusses on normal anatomy of intraoral radiographs. This section is a useful resource for the student or practitioner of dentistry or dental hygiene since a good understanding of normal anatomy is the foundation of radiological interpretation. One-hundred pages are devoted to normal anatomy from periapical, bitewing and occlusal views. The organization of this section is very logical and Kasle does not attempt to provide an atlas of pathology. The result is a straightforward reference for intraoral anatomy.

The second section looks at extraoral films and includes panoramic, lateral oblique jaw, TMJ views and skull films. The review of panoramic radiography is complete in its coverage of normal anatomy but does not provide a systematic approach to interpreting panoramic views (i.e. it is not broken into soft tissue anatomy, hard tissue anatomy, ghost images, etc.). For this reason, it may be confusing to the student who has not yet developed a systematic approach to viewing panoramic films. However, it does provide a good reference to look up a particular anatomical structure.

Eighteen pages in this section are devoted to TMJ radiography. Transcranial, transorbital, transpharyngeal, and lateral tomography are included. The orientation to normal anatomy and landmarks which is stressed in the section on intraoral films, is lost in this section. Instead, an assortment of pathological conditions is presented. In most cases the pathology pointed out is difficult to dis-

cern due to the image quality. Another downfall of this section is that arthrography has not been included.

There are 100 pages dealing with film artifacts, technical errors and items commonly seen in dental radiographs. This section provides an extensive collection of conditions and findings that are likely to appear on films in a dental office. It has also been expanded since the second edition making it more complete. The index at the end of the book is extensive which makes this a useful reference for the student or practitioner.

A section titled "Other Imaging Modalities" has been added to this third edition. It includes radionuclide studies, sonograms, and CT scans. Although this section is small and not nearly complete, it does provide a small sampling of other types of imaging used for the head and neck.

Overall, this is an excellent atlas of normal anatomy on dental intraoral radiography. The importance of being familiar with normal anatomy cannot be over stressed. The book also provides a useful collection of film artifacts, technical errors and conditions which are likely to be seen in the dental office.

The book was reviewed by:
Dr. Susanne Tottrup, BSc, DDS,
Diploma in Oral Radiology.

ESSENTIAL PATHOLOGY

Edited by E. Rubin and
J.L. Farber

1990, J.B. Lippincott Co., Philadelphia,
850 pages, \$42.95 U.S.

This book is a shortened version (reduced in length by about a third), of *Pathology* written by the same authors and published in 1988. The reduction has been achieved by omitting discussions of normal anatomy and physiology, as well as some of the rarer diseases, and some of the clinical and experimental evidence for current concepts.

According to the editors' preface, it is intended to be a textbook for students. They must have primarily medical students in mind, although it would also be suitable for dental students studying general pathology. Dentists wishing to update their knowledge of the subject would find it easy, and maybe even pleasurable reading.

The entire subject of pathology is covered: descriptions and discussions of

the basic processes of disease, namely, cell injury, inflammation, repair, immunopathology, neoplasia, haemodynamic disorders and genetic disorders. The remainder of the book covers systemic pathology divided into the usual categories by body system but, somewhat unusually, with chapters devoted specifically to the pancreas, the breast, diabetes, and amyloidosis. A chapter on 'environmental and nutritional pathology' is comprised of sections on smoking, alcoholism, drug abuse and environmental chemicals (this list in itself makes a comment on the habits and practices of contemporary mankind). The same chapter includes the more conventional topics of burns, effects of ionising radiation, obesity, starvation and vitamin deficiencies.

This is a multi-authored text with thirty-nine contributors, including the editors, each writing on the subject of their expertise. This system of textbook writing has obvious strengths and is virtually essential for major textbooks covering a large subject, such as the book from which this one is derived. There are some outstanding chapters such as the chapter on dermatopathology by W.H. Clark. The section on oral pathology has been written by a general pathologist and is generally superficial and repeats

several discredited theories. This need not be of concern to dental readers as parts of it would be immediately discounted; however, this section would leave a medical student rather grossly misinformed if this were his/her sole source of information on diseases of the mouth.

One of the strengths of the book lies in the large number of excellent illustrations which are mainly coloured drawings and diagrams. These are very helpful in providing an understanding of the concepts and processes of disease and will undoubtedly appeal to students.

The style of writing breaks the text into short pithy paragraphs and much use is made of bold and coloured typefaces. This approach tends to minimize differences in writing style among the numerous contributors and likely makes memorization easier for students who are concerned with doing well on examinations. It is not as readable as Robbins, Angell and Kumar's *Basic Pathology* with which it will compete in the student market, the latter being written by one man. However, students may prefer *Essential Pathology* for the punchiness of its text and the clarity of its illustrations.

This book was reviewed by:
J.H.P. Main

MONCTON CONFERENCE HEALTH PROMOTION

In conjunction with the CDHA Professional Conference
Moncton, New Brunswick

A one-day session has been arranged for the dental health team.

June 8th
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Dr. J. Natiella, Chairman
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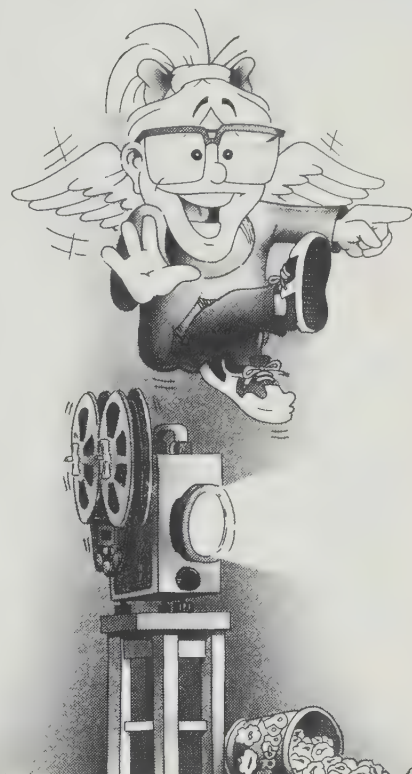
This presentation will test our understanding of stomatologic disease utilizing representative cases for discussion. The clinical conference mode will enable us to decide which forks in the road we are to take into the year 2000."

Registration fee: Dentists	\$195.00
Allied health professionals	\$ 75.00

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Remember that dream you had last night?



Hi! It's me, your conscience.

My favourite theatre is the one in our mind. And when you dream of daring adventures and romantic interludes, you'll always find me in a front row seat.

But you often show another kind of movie—one where you reach deep within us and change the world. And like all great stars, you make helping people and causes you care about look easy.

Could we watch that one tonight?



Imagine is a national program to encourage giving and volunteering.

The DAP Advisor

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

By pulling together and exercising patience and understanding, you and your dental team can help patients with dentalphobia conquer their fear of dental visits.

Fear Itself: Helping Patients Overcome Their Dentalphobia

Many people are nervous about visiting the dentist. According to one American survey, 75% of those polled said they suffered from anxiety during a dental visit. Fortunately, this anxiety does not deter most people from seeking out dental services. However, there is a category of individuals whose fear of going to the dentist most certainly does prevent them from getting the attention they need. These are the dental phobic — people whose often irrational fear prevents them from receiving the care required to maintain good dental health.

For a person with dentalphobia, a visit to the dentist is fraught with peril. As a result, these people may go years between dental visits. Ultimately, this neglect takes its toll, and they may be forced to seek out help when the pain of an emergency drives them to the dental office. They must then confront their fears in the context of a crisis — precisely the type of situation which is most likely to exacerbate their fears.

For you and your dental team, assuaging those with dentalphobia can often be quite challenging. It can be accomplished, however, as long as you and your dental team are prepared to work together and treat the patient with as much tact, patience and understanding as you can muster. This type of treatment should begin when the patient first approaches your practice. The receptionist, noticing the anxiety in the patient's voice when he calls for an emergency appointment, should gently reassure the patient. When the patient arrives, the receptionist should welcome him warmly by name. After that, you should greet the patient and, in a non clinical setting, calmly assure him that everything will be all right. This assurance should continue through the course of treatment and end when the patient has completed that day's treatment and is out the door.

For your patient and your practice, breaking through the fear barrier has both short-term and long-term benefits. In the short-term, the patient will have the emergency attended to. In the long-term, the patient may be more likely to do what is necessary to maintain his good dental health, including seeing you on a regular basis. He may even want to recommend your practice to friends, family and co-workers, some of whom may be closet dentalphobes themselves. To help you and your dental team ease a person with dentalphobia through the visit, here are a few suggestions:

- **Maintain an atmosphere of calm in your office.**

People with dentalphobia are already in a state of high anxiety and may be especially sensitive to the stimuli around them. If the atmosphere in your waiting and treatment rooms is soothing and calm, for example, with soft lighting and music playing quietly in the background, they are more likely to feel relaxed. This soothing atmosphere extends to the people in your office. If you and your dental team make an effort to keep the noise levels down, and talk to patients and each other in quiet, easy tones, you may help the person with dentalphobia feel more at ease.

- **Find out what the patient is afraid of.**

Different people are afraid of different aspects of the dental visit. Some may fear the sound of the dental drill. Others abhor the pain they believe dental treatment is likely to cause. Still others detest the sense of powerlessness they feel as they lie prone in the dental chair. There may even be people who have all these fears, along with others. The best way to determine what the patient is afraid of is to ask. That way you can take steps to overcome it. For example, you might put headphones playing soothing music on patients sensitive to the sounds of drilling. For patients afraid of pain, you can explain the various ways in which the pain can be prevented. (It might also help to call what they're feeling "discomfort" instead of "pain".) As for patients who fear powerlessness, why not give them a mechanism for exerting some control over the situation? For example, when anxiety strikes, ask them to raise a hand, or provide them with a bell or buzzer. That way you can stop for a moment and allow the patient to calm down before continuing.

- **Tell the patient what you are going to do before you do it.**

Fear of the unknown is another powerful fear. You can help dispel it by making sure the patient understands precisely what to expect from a procedure, even one as seemingly innocuous as an ultrasonic cleaning. Then, try to talk the patient through the procedure, explaining your actions as you go along. In this way, you can help remove the patient's fear of the unexpected and defuse his anxiety.

- **Don't go beyond what the patient can tolerate.**

If, despite your best efforts the patient is unable to continue with the procedure, place a temporary restoration and stop for the day. Commend the patient for having come this far, and have the patient book another appointment. (Make sure to stress the importance of completing the treatment, and have the patient come in for the next appointment as soon as possible — a patient with dentalphobia may want to delay the next visit, or even forgo it.) At this point it is vital for you and your dental team to reinforce the idea that this rescheduling is not a failure on the patient's part, (or for that matter, on your own part). Rather, it is a natural — perhaps even a predictable — part of treating someone with dentalphobia.

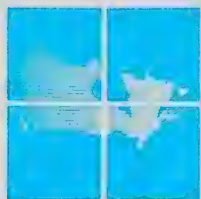
- **Thank the patient for following through with treatment.**

For a person with dentalphobia, completing treatment is indeed a milestone. It signifies the end of paralyzing fear, and can connote the beginning of a more normal relationship with you and your dental team. Recognize this new stage in the patient's life by making a bit of a fuss about the patient's accomplishment. Tell the patient how much you admire it. You might even want to commemorate it with a little gift, like a button or t-shirt that says "I DID IT". (Your local print shop could make these up for you.) Not only can such a gesture make the patient feel good about overcoming his fear, it can also help to cement the bond that has been established between the patient and your practice.



The DAP Advisor is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

CDSPI Reports



Your lifestyle in retirement

A retirement lifestyle does not just happen. The way we live now, the things we do, are the result of choices and decisions. The choices we make now will help to determine the kind of lifestyle we will have when we are older.

There is no such thing as a single, successful lifestyle in retirement. We are all individuals with different approaches to life. We do not easily change the habits and patterns of a lifetime, and circumstances such as personal finances and health can limit our options. Still, despite possible limitations, a retirement lifestyle does require choices and should involve planning. Let's look at some of the issues and problems we should consider in order to plan for a successful retirement lifestyle.

The process of retirement

Many people think that retirement is simply a matter of not working. A nice thought, but they have failed to realize that retirement is a phase of life that requires continuous refinement — a process of change that begins with anticipation of the event and continues through several post-retirement periods of adjustment. Retirement is not an event to deal with at a single point in time. It is a *process* and, as in any process, it requires continual acceptance of change and a continual willingness to adapt to that change.

There are a number of stages that you might go through. An awareness of these stages can help you to understand your current attitudes that are (or will be) occurring. If you understand what to expect, you can use the information as a basis for planning your activities.

The "looking ahead" stage

When people reach their early 60's,

they are often reminded of upcoming changes in their lives: friends ask about retirement plans; spouses plan extended trips and talk about living in another location. This stage in the retirement process is one in which dentists begin to prepare themselves for separation from their practices. They may cut their workload to two or three days a week and they begin to envision what retirement may be like. To many, these ideas, or fantasies, will bear little relation to reality. For example, playing golf — no matter how much they enjoy it — will not fill what amounts to 2,000 additional hours of non-working time each year.

The "honeymoon" stage

If your retirement has been planned and realistically anticipated, you will enter the "honeymoon" period. People report being busy and active during this period which may last up to several months or years if the retiree has sufficient resources and the imagination to use them. Because the retiree feels pretty good at this time, there is little motivation to plan for the future stages of retirement, with the possible exception of financial planning, where some assistance may well be required. The retiree should contact a financial counsellor who is knowledgeable about retirement and who will formulate an overall plan.

The "disenchantment" stage

Unfortunately, every honeymoon comes to an end and retirement begins in earnest when it no longer feels like an extended vacation. For example, a dentist who retired in June may not feel the full impact of retirement until he sees a new name on his office professional directory. The more unrealistic retirement fan-

tasies have been, the greater the letdown will be.

The "reorientation" stage

Retirees will often conduct a realistic appraisal of their alternatives for the future and explore new avenues of involvement. They start with substitutions that are not too difficult — ones where success encourages them to attempt further changes. Whatever the approach, the reorientation stage is a crucial one in the retirement process. Choices and decisions made at this time can determine the quality of the remainder of your retirement years.

Achieving a stable retirement

People with stable retirement lifestyles know their resources, capabilities and limitations. They feel relatively comfortable with their lives and the people in their lives. "Stability" may not be the right label for this stage, since the process of reorientation is — or should be — continuous. To obtain this stability, plans must be adjusted and readjusted. No rigid timetable can be imposed on the development of the four stages discussed, and not everyone will go through all the stages. Some dentists refuse to even think about retirement beforehand and invest themselves heavily in their practices right up until the day they leave. Dentists are renowned for not wanting to retire.

Retirement — just another vacation

Some individuals look upon retirement as one big vacation that includes travel, staying in fine hotels and eating at the best restaurants. If they have unlimited financial resources, no problem. How-

ever, vacations are planned and budgeted. You build in additional money so that you can stay in luxury hotels and go to fine restaurants. The cost of travel alone is far more than you might spend in your normal course of activities. No doubt, your spending on a vacation is three to four times what normally might be the case for one month.

Retirement should not be planned as an extended vacation, but it can certainly be a very rewarding and satisfying lifestyle if it is planned and approached with a positive attitude.

Your lifestyle in retirement is just one of the subjects presented in CDSPI's 1991 Dentists' Retirement Planning Seminar. Over 1,300 dentists and their spouses have attended this important two-day session — a practical, enjoyable way to learn how to achieve your retirement goals.

Here are the dates and locations of the remaining 1991 series of seminars:

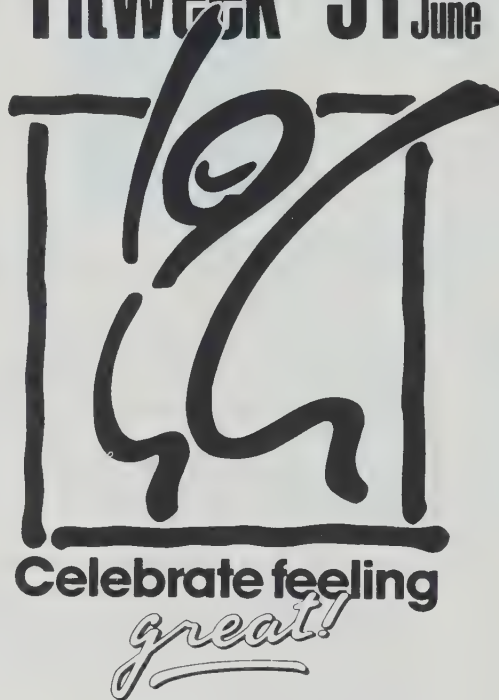
April 19-20	Edmonton, Alberta
May 3-4	Saskatoon, Saskatchewan
May 24-25	Ottawa, Ontario
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To obtain more information about the 1991 series of Dentists' Retirement Planning Seminars, write or call Pat MacNab, Seminar Co-ordinator, using our toll-free lines.

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Canada's Fitweek '91 May 24 - June 2



Fitness Canada

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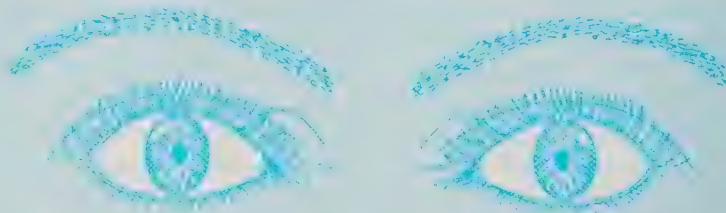
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Canada's Fitweek is a partnership of Fitness Canada, provincial and territorial governments, and 16 national organizations; coordinated by the Canada's Fitweek Secretariat.

Canada's Fitweek, May 24 to June 2, is the largest annual celebration of physical activity in the world. Join the action and make physical activity a regular part of your life.

Participate on your own, with friends and family or join one of over 14,000 Fitweek events across the country.



Let your eyes do some browsing

in the CDA JOURNAL'S 'Blue Pages'

(Read about the 1991 CDA CONVENTION!)

1991 QUEBEC CONVENTION

AUGUST 24 - 28

Convention Update

The 1991 Convention Committee — Some of Quebec City's Finest!



There is no lack of enthusiasm for the 1991 CDA Annual Convention amongst Quebec City area dentists. In fact, an overwhelming number of its dentists have shown an interest in helping ensure the success of the Quebec Convention.

As General Chairman I am once again fortunate to have the opportunity to work with a dynamic team of winners – the members of the 1991 Convention Committee. These

dentists have volunteered their time (and one knows how valuable that time is), talents and effort to create another victory for the Canadian Dental Association.

Each and every one of the committee members have had input in *all* aspects of the convention. In addition, they each have a specific area they will coordinate on-site. The 1991 committee members are: Dr. Hélène Allard, Dr. Louise Beaudry, Dr. Gaston Bernier, Dr. Vivian Carter and Dr. Denis Robert. The dental hygienists and dental assistants are once again being represented by Ms. Diane Pike (Canadian Dental Assistants' Association) and Ms. Dale Scanlan (Canadian Dental Hygienists' Association), both very capable and experienced convention committee members.

The Convention Committee has designed a scientific program with more than 40 different lectures on all aspects of dentistry and numerous table clinics. More than 13 lectures will be presented in French or will be simultaneously translated from English. In addition to an elaborate Spouses' Program and an exciting Children's Program, the committee is striving to develop one of the best Social Programs the Canadian Dental Association has ever offered.

The social program agenda will include the Opening Ceremony on Sunday, August 25. (The first 1800 registrants will be guaranteed a seat.) On Monday, August 26 the day will begin at the crack of dawn with the annual Fun Run and end with the cherished President's Gala (formal). On Tuesday evening the Meet & Greet evening will help wind things down, it's an informal evening event featuring fun and dancing for the entire dental team.

Committee members are also creating an inviting atmosphere in the 1991 Exhibit Hall where there will be numerous give-aways, including a car to drive, holidays in the sun, trips to Europe, cameras to click, televisions to view, and compact discs to enjoy.

The committee members and I look forward to welcoming you, your families and your staff to Quebec this August. We extend a special invitation to those of you outside Quebec, who have yet to experience a touch of Europe without leaving the continent.

See you in Quebec!

Michel Jahjah, D.D.S.
General Chairman
CDA Conventions

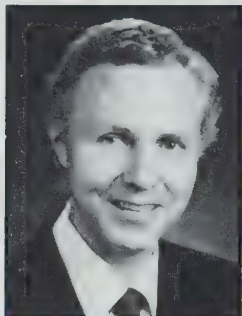


Place Royale, Old Quebec

QUEBEC 1991

PRE-CONVENTION PREVIEW

GORDON J. CHRISTENSEN, D.D.S.,
M.S.D., Ph.D.
Provo, Utah



SATURDAY, AUGUST 24

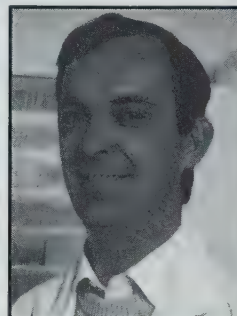
"New Aspects of Dentistry - 1991"

This program is designed to update practitioners in many of the new and useful aspects of dentistry. The following subjects are included:

- * Posterior Tooth Restorations - A comparison and clinical critique of tooth colored inlays, onlays and class 2 composites with amalgam and cast gold.
- * Fixed Prosthodontic Advances - New impression materials, accurate interocclusal records and a comparison of new cements.
- * Preventive Resin Restorations - Making class 2 type resin serve in "sealant" indications with long wear, high retention potential.
- * New Resins - Selection of the most acceptable restorative resin for your practice.
- * Dentin Adhesion - A candid look at current products claiming bond to dentin.
- * Bases and Liners - A comparison of the many new types of bases available, including traditional glass ionomer, resin and light cured glass ionomer.

About the clinician:

Dr. Christensen is founder and Co-Director with Dr. Rella P. Christensen of Clinical Research Associates (CRA), which conducts research on dental materials, techniques, devices and new concepts in dentistry. Dr. Christensen is founder and Director of Practical Clinical Courses, established in 1981 as a Career Development Program for dentistry. Currently he participates on the post-graduate faculties of many dental schools and is an Adjunct Professor at Brigham Young University and a Clinical Professor at the University of Utah.



TORSTEN JEMT, D.D.S., PH.D.
Gothenburg, Sweden

SATURDAY, AUGUST 24 & SUNDAY, AUGUST 25
HANDS-ON COURSE

"Basic Clinical Prosthetic Training Course on Osseointegrated Implants"

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

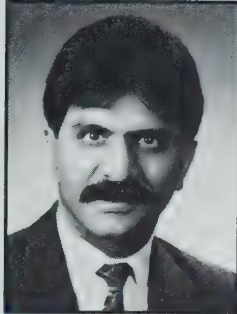
- * Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- * Presentation of conventional treatment concepts including comments on other implant systems.
- * Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- * Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- * Prosthetic treatment planning, patient selection, indications and contraindications.
- * A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- * Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- * Presentation of patients in various stages of treatment including completed patients.
- * Discussion of possible complications and how to handle them.
- * Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

About the clinician:

Dr. Jemt obtained his D.D.S. in 1975 and specialized in prosthodontics in 1982. His Ph.D. thesis was defended at the University of Gothenburg in 1984. In 1988 he was made Associate Professor in Prosthodontics. Since 1986 he has been Associate Head of the Branemark Clinic. Dr. Jemt has presented more than 100 lectures to professional audiences and is the author of over 30 scientific publications. He is currently involved in research on single tooth replacements.

QUEBEC 1991

PRE-CONVENTION PREVIEW



IMTIAZ MANJI, B.Sc.
Vancouver, B.C.

AND



TOM SNYDER, D.M.D., M.B.A.
Cedar Knolls, N.J.

SATURDAY, AUGUST 24

HANDS-ON COURSE

"The First Step to High Tech"

Each participant will begin the seminar with an unassembled computer in front of them. Working from the ground up, Mr. Manji and Dr. Snyder will explain computer technology in straight-forward, non-technical terms and guide the participant through assembly of their own computer.

Once the computers have been assembled, they will be powered up and Mr. Manji and Dr. Snyder will continue their discussion about popular computer programs and dental practice management software.

As a participant, you will have an opportunity to see each of the programs discussed - from MS-DOS and Lotus 1-2-3 to sophisticated dental software with which you can record patient information and bill dental procedures. The seminar is assisted by several experienced computer users so everyone will have plenty of opportunity to get their questions answered.

About the clinicians:

Imtiaz Manji is President of ExperDent Consultants Inc. and founder of Exan Technologies Inc. Mr. Manji travels extensively to deliver his unique perspective on high-tech, high-touch practice management to Canadian dentists. He has a quarterly column "Practicing for Success" in which he reveals how his down-to-earth approach to technology has assisted many Canadian dentists to attain tremendous increases in productivity and financial stability.

SUNDAY, AUGUST 25

"Managing for Financial Success"

This seminar will show you the steps you need to take to effectively manage your practice's growth and achieve personal and financial independence. Unlocking the wealth of your practice and translating it into growth and success can only be accomplished through strategic financial management and practice planning.

As a participant you will learn the critical indicators of a healthy practice, how to collect and analyze data to measure the health of your practice, and how to use planning tools like spreadsheets and financial models to simplify decision-making. Analyzing your practice on a monthly basis in this manner will reveal hidden opportunities for success in retirement planning, practice profitability, practice value, staff retention, patient flow and productivity. In addition, you will learn methods to involve your team in the success of the practice through profit-sharing, bonus structures and fringe benefits.

Dr. Thomas Snyder is Director of Professional Services for Sarantos & Company, a financial and practice advisory firm serving the healthcare professions, located in Cedar Knolls, New Jersey. He is a graduate of the University of Pennsylvania School of Dental Medicine as well as a graduate of the Wharton Graduate School of Business. Dr. Snyder was a senior partner in his own nationally known dental management and computer consulting firm prior to joining Sarantos & Company Inc.

Quebec 1991

Highlights of the 1991 Convention Program

Monday, August 26th

EDWIN YEN, D.D.S.

Winnipeg, Manitoba

"Orthodontic Advances: Biological Solutions"

Early studies on the biology of tooth movement, sutural manipulation and TMJ remodelling, while often preliminary in nature, laid the basis for much of current orthodontic diagnostic technique and mechanotherapy.

Topics will include: root resorption, rate of tooth movement, limitations of TMJ, sutural remodelling and mandibular and maxillary growth.

JOHN YOUNG, D.D.S., M.S.C.

San Antonio, Texas

"Dental Office Lighting and Design"

Design of new remodeled dental offices should be approached with an eye towards esthetics, efficiency, cleanliness, and a sense of caring. Features which will enhance patient acceptance will be illustrated and discussed.

Topics will include: color balanced lighting, light fixtures and bulbs that provide maximum illumination, selection, use and care of dental operating lights and fiberoptic systems, selection of interior finish materials for walls, floors and ceilings.

"Ergonomic Factors in Dental Equipment and Asepsis in the Dental Office"

Proper use of dental delivery equipment is essential to preserve the health of the dental operating team as well as allowing efficient long term delivery of care. In addition, optimum infection control and aseptic practice is mandatory in today's dental office.

Topics will include: principles of ergonomics, as applied to patient care, equipment layout schemes, dental treatment room designs, selection of equipment for both longevity and ease of maintenance, design of dental treatment and instrument preparation areas, pros and cons of sterilization systems, environmental control to prevent the spread of airborne pathogens.

DENNIS SMITH, D.D.S., M.S.C., PH.D., D.S.C.

Toronto, Ontario

*** "Biomaterials and Biocompatibility - A Current Perspective"*

The majority of dentists received their dental education twenty years ago or more. Since that time the majority of materials used clinically by the dentist has changed from those based on natural products and simple compositions, such as gold, porcelain, silicate and phosphate cements to complex materials of synthetic origin.

Topics will include: discussion of the interaction between tissues and materials, physical, chemical and electrochemical factors will be discussed in relation to inflammatory immune responses, tumorigenesis and biodegradation with reference to current issues such as mercury release from amalgam, allergy to nickel and basic metal alloys and reactive polymer bonding agents.

**** simultaneous translation**

KENNETH SHAY, D.D.S., M.S.

Milwaukee Wisconsin

"Guidelines for Restoring the Aged Dentition"

Increase in the number and anticipated life expectancy of older adults has combined with decreasing tooth loss among this group. This session will focus on clinical issues involved in the dental management of members of the older population.

Topics will include: pulpal regression and insensitivity, exposed root areas and proximal furcations, exploration of these changes on the dentist's approach to planning and rendering care, strategies for building and enhancing retention of restorations, root caries detection, management and prevention, impact and assessment of xerostomia.

"Dental Management of the Frail Older Patient: The Dentist as a Member of the Geriatric Health Care Team"

A significant number of older patients suffer from one or more chronic disease states. This presentation will focus on the dental management of the chronically debilitated older adult whose care involves coordination with other health care disciplines.

Topics will include: interplay between dental, medical and allied health management, complete dentures for patients afflicted by stroke, management of candidiasis in institutionalized patients, dental considerations for patients who have had hip arthroplasties.



UNESCO World Heritage Treasure, Old Quebec

Quebec 1991

Highlights of the 1991 Convention Program

BARBARA STEINBERG, D.D.S.

Pittsburgh, Pennsylvania

*"Medical Considerations for the Female Patient:
From Puberty to Menopause"*

Dental care for the pregnant or nursing patient requires special attention because treatment involves two individuals with different physiologies. The goal of the course is to familiarize the dental team with the effects of radiation and medications on the mother, fetus and nursing infant.

Topics will include: answers as to the best time for treatment, a discussion of treatment options that can be rendered, puberty, menses, menopause, oral contraceptives, hormonal replacement therapy and their effects on the oral cavity and dental therapy.

PHILIP MOLLOY, D.M.D.

Boston, Massachusetts

"Endodontic First Aid"

Endodontic emergencies always seem to happen at the most inconvenient time. The harried dentist is faced with a patient that needs help now! This course will show how to take care of this emergency quickly and make it elective.

Topics will include: radiographic interpretation and diagnosis, special problems with anesthesia, occlusion, role of antibiotics and pain medications, signs and symptoms of acute pericementitis, dentist-induced etiology-latrogenic, treatment options, pulpotomy and pulpectomy.

ROBERT SAMP, M.D.

Madison, Wisconsin

"Stress: Living In, With and In Spite of It"

A discussion on how to improve your chances in the realm of mental, social and physical health. Dr. Samp gives ways and means to achieve harmony, peace, equanimity on the office-front, home-front and points between.

Topics will include: emotional stability through positive actions that lessen stress, rebuild or maintain relationships and make life more enjoyable all around.

Tuesday, August 27th

JOANNE LAMANTIA, B.A.

Toronto, Ontario

"Computers in the Dental Practice"

Topics will include: benefits of computerization, computing without fear, where and how do I begin, questions to ask when searching for the right system, computer software and hardware, preparing the office and staff for automation, what happens after you purchase.

PHILIP MOLLOY, D.M.D.

Boston, Massachusetts

"Exploring Periapical Surgical Approaches"

Far too much periapical surgery is done here as in the rest of the world. How much better is to treat or re-treat these teeth conservatively than to seal the debris in the canal.

Topics will include: elimination of toxic material, alleviation of pain, post operative failure of conventional therapy, predictable failure with conventional therapy, flaring apex, fracture in the apical third, persistent infection, apical cyst, dowel retention crown, excessive calcification, procedural accidents - instrument fragmentation, perforation, over-instrumentation, gross overfilling, optional methods including surgical drainage, periradicular surgery, corrective surgery and total root amputation.

DENNIS SMITH, D.D.S., M.SC., PH.D., D.S.C.

Toronto, Ontario

"Update on Bonding and Cements"

Bonding to enamel and dentin involves both mechanical interlocking and chemical interaction. The current systems will be critically examined for their practical performance.

Topics will include: acid etch bonding, the affects of pretreatment to bonding, reaction of mineral and/or protein components to chemical bonding, new developments in glass ionomer and adhesive resin cements, problems related to marginal leakage, and pupal sensitivity.

BARBARA STEINBERG, D.D.S.

Pittsburgh, Pennsylvania

*"Team Approach to Treating the Dental Patient
with Medical Problems"*

Two out of three patients in America who will seek dental care in the next year have something in their medical history that could complicate dental treatment. Because of this, it becomes more clearly the responsibility of the dentist to avoid therapeutic conflict and deal with medical emergencies when they occur. The goal of this course is to give the dental team a simple but comprehensive approach to evaluating the physical and physiological status of a patient prior to treatment.

Topics will include: the role of the dental team in treating patients with common systemic disorders such as infectious diseases, cardiovascular disease and those requiring antibiotic prophylaxis, evaluation and management of common medical emergencies which may occur.

Quebec 1991

Highlights of the 1991 Convention Program

SEBASTIAN CIANCIO, D.D.S.

Buffalo, New York

*** "Periochemotherapeutics"*

A look at how your patients and your practice can benefit from knowledge of the latest chemotherapeutic agents available for use in the prevention and treatment of periodontal disease.

Topics will include: the use and effectiveness of various antimicrobial rinses, dentifrices and mouthwashes, clinical discussion of the various medications both topical and systemic currently recommended as adjuncts to periodontal therapy, including relationship of these agents to both surgical and non-surgical modes of periodontal therapy.

**** simultaneous translation**

ROBERT SAMP, M.D.

Madison, Wisconsin

"Survival Strategies for Executives and Other Endangered Species"

Discover the secrets to a longer, healthier life by attending this session. Dr. Samp, an early pioneer in health promotion and disease prevention has entertained hundreds of audiences with his positive and humorous outlook on healthful living.

SOL SILVERMAN JR., M.A., D.D.S.

San Francisco, California

*** "Update on AIDS, HIV Infection and Dentistry"*

An update on the biology, diagnosis and management of oral lesions.

Topics will include: opportunistic infections including candidiasis, herpes, periodontal disease and other fungal, viral and bacterial infections, HIV-associated malignancies including Kaposi's sarcoma and lymphomas and HIV-associated autoimmune diseases including recurrent aphthae and allergies.

**** simultaneous translation**

PETER GUEVERA, D.M.D., F.A.C.D.

Pittsburgh, Pennsylvania

"How to Get the Best Clinical and Laboratory Results from all Light Activated Materials Systems"

This clinical presentation will involve the evaluation and selection of a good light activating machine. The mechanism for light curing as well as the care and maintenance of the different light curing equipments.

Topics will include: selection of different materials for restorative, pediatric, orthodontic and prosthodontic uses, laboratory fabrication of photo cure products will also be discussed, evaluation and discussion of future products.

CHARLES BLAIR, D.D.S.

Charlotte, North Carolina

"Controlling Practice Overhead"

Overhead has been increasing at a rate of approximately 1% per year for the last decade. Concepts related to appropriate allocations as a percentage of gross for fixed and variable expenses will be discussed.

Topics will include: efficiency measurement in clerical, clinical and hygiene areas, methods to increase efficiency, utilization of core and part-time staff, compensation arrangements that stimulate high productivity, the relationship between fee profile and profitability.

SEBASTIAN CIANCIO, D.D.S.

Buffalo, New York

"Dentotherapeutics"

The objective of this program is to provide dental practitioners with a clinical understanding of basic principles of pharmacology as they apply to dental therapy.

Topics will include: medication related problems such as xerostomia, candidiasis, root surface caries, orthostatic hypotension, developing treatment plans for an aging population.

MARILYN CIANCIO, B.A., M.A.

Buffalo, New York

"Leadership and Volunteerism: What Makes It Work?"

The goal of this seminar is to enable participants to realize their leadership potential.

Topics will include: dynamics of leadership, critical factors in running a successful meeting, the effect of attitude on success and volunteer/staff reinforcement, group involvement in problem solving and personal public relations.

Quebec 1991

Highlights of the 1991 Convention Program

Wednesday, August 28th (AM ONLY)

SOL SILVERMAN JR., M.A., D.D.S.

San Francisco, California

"Update on Oral Cancer and Premalignant Lesions"

A review of the current trends in occurrence and demographics for oral cancer and premalignant lesions and a general discussion of these topics.

Topics will include: etiology and prevention, precancerous leukoplakia and erythroplasia, biology, diagnosis management and role of Vitamin A, early detection, vital staining and the role of lasers in management.

PETER GUEVERA, D.M.D., F.A.C.D.

Pittsburgh, Pennsylvania

*"New Materials, New Techniques in Prosthodontics
for Family Dentists"*

This presentation will include patient's evaluation, fabrication of complete and partial removal prosthesis, quick and accurate tray selection, final impression and cast fabrication.

Topics will include: impression materials and trays, efficient and effective bite registration, simplification of teeth selection and aesthetic arrangement of different brands of teeth, quick delivery denture processing techniques, denture care and maintenance and recall.

CHARLES BLAIR, D.D.S.

Charlotte, North Carolina

"Dental Practice Transitions"

This course is designed for dentists and their spouses who are considering entering an associateship or partnership relationship or the purchase or sale of a professional practice within five years.

Topics will include: an in-depth look at the issues and complexities of these transactions, consideration of the positive and negative aspects of the available options, improving the planning process and controlling the impact these transitions will have on professional, financial and personal spheres.

FRENCH PROGRAMS AND SIMULTANEOUSLY TRANSLATED LECTURES

**GORDON CHRISTENSEN,
D.D.S., M.S.D., Ph.D.**

Provo, Utah

"New Aspects of Dentistry – 1991"

**HÉLÈNE LEMAY, D.D.S., M.Sc.
ANNE CHARBONNEAU, D.M.D.
University of Montreal**

Montreal, Quebec

"Local and Electrical Anaesthetics"

DOMENIC MORIELLI, B.Sc., D.D.S.
Quebec, Quebec

"Surgical Risks in General Practice"

SYLVIE MORIN, D.D.S.
Quebec, Quebec

"Dental Materials Update"

GILLES GAUTHIER, D.M.D., M.S.E.

Montreal, Quebec

"Removable Partial Dentures"

LÉO PELLETIER, D.M.D., MRCD

Montreal, Quebec

"Periodontics and Muco-gingival Surgery"

SALAM SAKKAL, D.M.D., M.S.D.

Montreal, Quebec

Endodontics

SEBASTIAN CIANCIO, D.D.S.

Buffalo, New York

"Perio-chemotherapeutics"

SOL SILVERMAN JR., M.A., D.D.S.

San Francisco, California

"Update on AIDS, HIV Infection and Dentistry"

**DENNIS SMITH,
D.D.S., M.Sc., Ph.D., D.Sc.**

Toronto, Ontario

*"Biomaterials and Biocompatibility:
A Current Perspective"*

ROBERT SAMP, M.D.

Madison, Wisconsin

"Stress: Living In, With and In Spite of It"

UNIVERSITY OF LAVAL

Dental Research – Update

*These presentations
and many more
will be highlighted
in future issues of
the CDA Journal.*

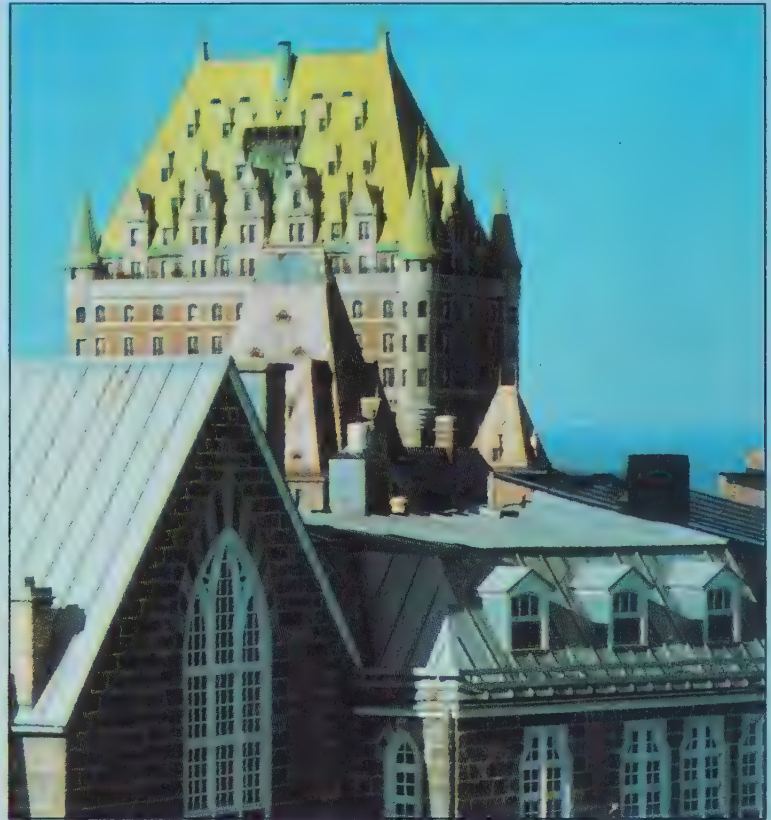
Quebec 1991

Table Clinics

Table Clinics are defined as a brief table top presentation or demonstration of five to ten minutes duration using visual aids, and repeated over a 2 1/2 hour period.

Those interested in presenting, write to:

TABLE CLINICS
CDA Conventions
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6



Quebec, Quebec - A part of Europe transplanted in North America



**CALLING ALL 4TH YEAR DENTAL STUDENTS
& 1990 GRADUATE DENTISTS IN CANADA...**

CDA Conventions wants to register YOU for the 1991 Convention!

In an effort to increase dental student representation at the Canadian Dental Association's Annual Convention we are proud to announce the "Host-A-Dental-Student" Program.

We have canvassed Quebec City dentists to develop a list of dentists interested in hosting dental students attending the 1991 CDA Convention being held in Quebec, Quebec - August 24-28, 1991.

That means, you could have accommodation at no charge and a unique opportunity to develop ties with dentists in 'la belle province'.

Call CDA Conventions at 1-800-267-6364 (East) or 1-800-267-6354 (West) for details.

Applications for this program are available through your school's dental faculty.

Quebec 1991

1991 Spouses' Program

Organized tours of some of Quebec's unique tourist attractions included.

In addition to having access to the Exhibit Hall and the General Scientific program, registrants to the spouses' program will also have an opportunity to attend three lecture sessions specifically prepared for their enjoyment:

Monday PM

Robert Samp, M.D.

Madison, Wisconsin

Stress: Living On, In, With, Through and In Spite of It.

Tuesday AM

Robert Samp, M.D.

Madison, Wisconsin

Survival Strategies for Today's People

Tuesday PM

Marilyn Ciano, B.A., M.A.

Buffalo, New York

Leadership and Volunteerism: What Makes It Work?

About the speakers:

Dr. Robert Samp, doctor of medicine, university professor and health educator has long been a pioneer in health promotion, disease prevention, increasing longevity and enhancing the quality of life style. He sugar-coats the pill of reality with common sense and good humour — to challenge, enlighten, spark and entertain his listeners.

Ms. Marilyn Ciano has a B.A. in Sociology and an M.A. in Education from the State University of New York at Buffalo. She has a wide variety of media experience, has acted, modelled, taught and led workshops on stress management, volunteerism and nutrition. She is actively involved in several New York organizations.

1991 Children's Program

This year the accent will be on fun, fun and more FUN!

Registrants to the children's program will visit several of Quebec's tourist attractions on organized outings. The registration fee will also include two box lunches.

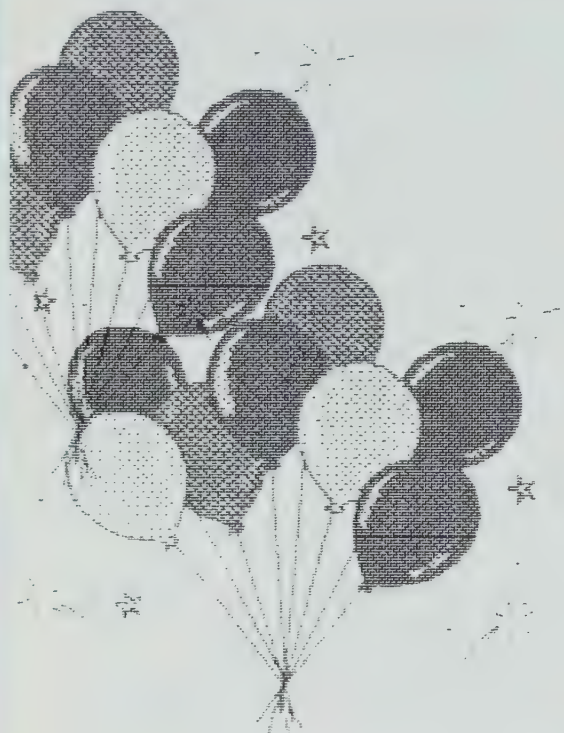
Please note that the program is open to children 5 years and older.

Future issues of the CDA Journal will carry the 'scoop' on what the kids will be doing while the dentists are learning about the latest in dentistry and the spouses are enjoying a taste of Europe while remaining in the country!



QUEBEC 1991

The 1991 Convention's Social Agenda will include:



ANNUAL OPENING CEREMONY...

- WHO:** Talent with a local flavour.
- WHAT:** An evening of entertainment for the entire family.
- WHEN:** Sunday, August 25th
- WHERE:** The elegant Grand Théâtre du Québec
(Totally renovated this summer just prior to our event!)
P.S. Shuttle service will be available.
- WHY:** To welcome 1991 delegates to the Canadian Dental Association's Annual Convention.

COST: IT'S FREE! (But space is limited to the first 1800 registrants.)

PRESIDENT'S GALA "SOIRÉE CHARME ET CHAPEAU"

MONDAY, AUGUST 26TH

The traditional formal night out for CDA convention-goers. It's the evening many look forward to, with anticipation, year after year. A night to dress in your best and enjoy the finer things in life. The President's Gala will feature classic live entertainment and a full-course dinner.

Reserve early. Space is limited.



And to wind down the Convention activities, the 1991 Convention Committee invites you, your staff and your spouse to join them at the 'conventional' -

**MEET & GREET EVENING
TUESDAY, AUGUST 27TH**

Live entertainment and a cash bar. It'll be a "Tropical Night" so get ready to pull the office gang together for an informal evening of fun and frolic!

Quebec 1991

How to register for the CDA Convention

Filling out Your Registration Form

1. Register early, some courses and events have limited attendance.
2. There is only one registration form to be used by all categories of participants.
3. Use one form per person (photocopy for several registrants).
4. Spouses and children should have a separate form for each individual.
5. Total the dollar amount of activities and courses you plan to attend, and either provide the necessary credit card information or make cheque payable to the Canadian Dental Association.
6. If your payment covers the cost for several registrants, your name or company name should be clearly indicated in the appropriate space on each registration form.
7. If hotel accommodation is needed, fill out the hotel reservation form.
8. If travel arrangements are needed, call Air Canada Convention Central for the best rates and services.

Filling out Your Hotel Reservation Form

1. Reserve early. August is a very busy month in Quebec. We have negotiated for you the best rates possible at many of Quebec's luxury hotels, but hotel rooms are limited in number.
2. CDA is handling the hotel reservations in house, so you **will not** be able to reserve directly with the hotel.
3. Use one reservation form per room.
4. Your reservation will be confirmed by the hotel.
5. You must guarantee your room for the first night by providing credit card details. The information you provide will remain with the hotel until your scheduled date of arrival – only then will the hotel credit your account.
6. Any further changes to reservations should be made through CDA Headquarters.

Making your Your Airline Reservations

Air Canada has been appointed the sole official carrier for the Canadian Dental Association 1991 Annual Convention in Quebec. Special arrangements have been made with Air Canada to offer convention participants discounts on air fares. To take advantage of this service, you must call Air Canada's Convention Central when booking your tickets (your travel agent can call on your behalf). Dial **1-800-361-7586**. The Convention Central hotlines are open **weekdays, 8:30 a.m. to 8:00 p.m. EST/EDT**. Identify yourself and the CDA convention. Air Canada's convention experts will do the rest. The lowest fare available will be confirmed to you, subject to availability and advance purchase conditions.

Fly Canada's #1 Convention Airline to the 1991 CDA Convention in Quebec, and SAVE. Through Convention Central, you also have the opportunity to save on car rentals. Ask for details when booking your flight. The Convention Central staff are eager to help in any way.

Not to be overlooked, Air Canada has graciously offered two economy class return tickets good for travel on any Air Canada serviced destination (except Bombay and Singapore). This will be the prize awarded in our Advance Registration Draw. To be eligible for the draw, dentists and dental team members must register for the convention before July 10, 1991.

AIR CANADA 
OFFICIAL CARRIER

1991 CANADIAN DENTAL ASSOCIATION ANNUAL CONVENTION

August 24 - 28, 1991 ■ Quebec

Hotel Reservation Form

Please check appropriate category:

☐ Dentist ☐ Hygienist ☐ Assistant ☐ Exhibitor ☐ Office Personnel ☐ Other (please specify) _____

Name: _____

Address: _____

City: _____ Province: _____ Postal Code: _____

Telephone: () _____ () _____
(Residence) (Office)

Type of Room:

☐ Single ☐ Double ☐ Twin ☐ Other (please specify) _____

Indicate first three hotel choices* (by numbering the boxes):

- ☐ Quebec Hilton (CDA Headquarters) \$ 130.00 single / double
☐ Hotel des Gouverneurs (CDA Headquarters) \$ 115.00 single / double
☐ Loews le Concorde \$ 120.00 single / double
☐ Château Frontenac \$ 140.00 single / double

* Prices do not include GST

Arrival Date: _____

Departure Date: _____

Arrival Time: _____

In order to reserve a room, a guarantee for the first night is essential. The guarantee will apply to the first night ONLY. To cancel your reservation advise the CDA at least three (3) days prior to your arrival.

☐ MasterCard ☐ American Express ☐ VISA

Card Number: _____

Expiry Date: _____

Signature: _____

Send Reservation Form to:

CDA Conventions
Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

DEADLINE for Reservations: July 10, 1991

CANADIAN DENTAL ASSOCIATION CONVENTION

Quebec • August 24 - 28, 1991

PRE-REGISTRATION FORM • Please PRINT

With the computerized registration system, it is *essential* that each registrant fill out a separate form. To ensure your requests are accommodated - **register early**. Advance registrations will be accepted until **July 10, 1991** after which they will be returned to the sender. Each on-site registration will be subject to a \$27.00 administrative fee (GST included).

SURNAME: _____ FIRST NAME: _____ SEX: M F

ADDRESS: _____

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PRE-CONVENTION • AUGUST 24, 25 • Limited Attendance

SATURDAY, AUGUST 24

** Gordon Christensen, D.D.S., M.S., Ph.D. - RESTORATIVE - Lecture

Dentist \$ 160.00

Staff \$ 70.00

Imtiaz Manji, B.Sc. & Tom Snyder, D.M.D., M.B.A. - COMPUTERS - Hands-on Program

Dentist (limited attendance) \$ 250.00

Staff (limited attendance) \$ 250.00

SUNDAY, AUGUST 25

Imtiaz Manji, B.Sc. & Tom Snyder, D.M.D., M.B.A. - PRACTICE MANAGEMENT - Lecture

Dentist \$ 160.00

Staff \$ 70.00

Torsten Jemt, D.D.S., Ph.D. - IMPLANTS - Hands-on Program

• TWO-DAY COURSE: SATURDAY AND SUNDAY •

Dentist (limited attendance) \$ 350.00

* GST is not charged on Pre-convention courses. ** Simultaneous translation.

CONVENTION • AUGUST 26, 27, 28

☐ DENTIST

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Non-member, Others (7% GST included) \$ 155.00

Includes: Scientific sessions and exhibits

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☐

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☐

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Includes: Scientific sessions and exhibits

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Includes: Scientific sessions and exhibits

☐ ADMINISTRATIVE PERSONNEL (7% GST included) \$ 70.00

Includes: Scientific sessions and exhibits

☐ STUDENT ☐ Dentist ☐ Hygienist ☐ Assistant \$ Nil

Includes: Scientific sessions and exhibits

☐ ACCOMPANYING PERSON/ SPOUSE (7% GST included) \$ 102.00

Includes: Scientific sessions, exhibits and Spouses' Program.

☐ CHILD (7% GST included) \$ 65.00

Open to children 5 years and older. Child's age: _____

Includes: Access to convention and Children's Program.

GST Registration Number: R016845209

☐ SOCIAL EVENTS

Sunday - Opening Ceremony - Subject to space availability

Will attend ☐ Yes ☐ No \$ Nil

Monday - President's Gala - "Soirée Charmie et Chapeau"

(per person) (7% GST included) \$ 60.00

Tuesday - Meet & Greet - Tropical Night

Will attend ☐ Yes ☐ No \$ Nil

☐ FUN RUN

Monday A.M. (7% GST included) \$ 16.00

TOTAL \$

The above registration fees are paid by _____

☐ I wish to pay the above total by credit card: ☐ MasterCard ☐ VISA ☐ AmEx

Card#: _____ Expiry date: _____

Signature of Cardholder: _____

☐ I enclose a cheque payable to the Canadian Dental Association.

Post-dated cheques will not be accepted.

Mail registration form with payment to:

1991 CDA Convention

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Ottawa, Ontario

K1G 3Y6

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OCTOBER 7 - 13, 1991



THANKS TO BONECHI EDITORE - FIRENZE FOR PERMISSION TO REPRODUCE PHOTO

The Canadian Dental Association in co-operation with TourCan Inc. invites you to participate in the 1991 FDI Congress being held in Milan, Italy, October 7-13, 1991.

Four exciting tour packages have been developed for your enjoyment:

Itinerary #1 - Burgundy/Lyon/French Riviera - Milan (15 days)

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To book space on one of the tours contact David at **TourCan**, at **1-800-263-2995** (in Toronto, call 416-787-0334). To receive information about the Congress contact Janice Edgar at CDA Conventions, 1-800-267-6364 (East) or 1-800-267-6354 (West).

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Smile and Save!

April is Dental Health Month. Join with dedicated dental professionals in communities from coast to coast to celebrate Canada's smiles.

CDA offers a wide range of promotional support that lets you custom-tailor your own Dental Health Month campaign.

Put together your needs and your imagination with the right stuff from CDA. A Celebration of the Smile poster from renowned illustrator John Fraser. Five Point Prevention Plan appointment cards. And Dental Health Month mascot Bob served up every way you like him: on buttons, balloons, T shirts, and stickers. And in person, too!

Order your Keep Smiling materials today and save.

If you're a CDA or CDHA member, you can save 25% — and that's something to really smile about!

Celebration Poster

More than a poster - an original work of art! Created by renowned Canadian illustrator John Fraser, this full-colour print captures the spirit and warmth of "A Celebration of the Smile". It'll look great in your office or waiting room. Approx. 18" x 24"

\$2.75

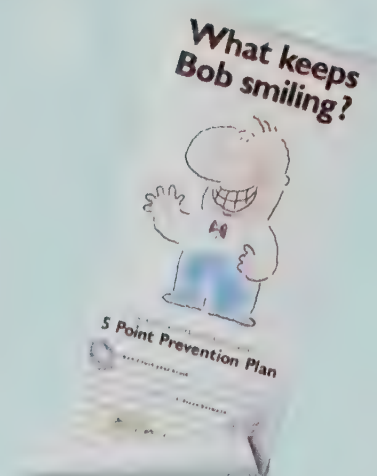


Bob Poster

Size 12 1/4" x 36"

\$1.35

Price Reduced!



T-Shirt

One size—Extra Large.

\$15.50



Golf Shirt

Available in S, M, L, XL.

\$45.00

Bob's Radio Commercial

A 30-second public service announcement for use by all local and regional media relations organizers during Dental Health Month.

\$10.75

Sweatshirt

Also available in S, M, L, XL.

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Display Balloon

A BIG balloon - it inflates to 40 inches around - for displays and exhibits.

\$14.75



BIG Bob - Special Order

And we mean BIG. He stands 5'3" tall. Put him in your waiting room and watch the big smiles he gets. This special order item will be made available if CDA receives sufficient orders.

\$85.00



Keep
Smiling

Balloons

Package of 50

\$14.00



Buttons

Package of 25

\$14.00

Celebration Planning Kit

For community organizers. This kit is brimming with ideas, activities and tips that will help you bring a Celebration of the Smile to your community this April!

\$7.00

Magnetic Bob

Such an *attractive* character! Give him to patients to stick on refrigerators and filing cabinets.

\$1.00



Stickers

A perfect giveaway to young patients (and to the young at heart!)

roll of 100

\$9.50

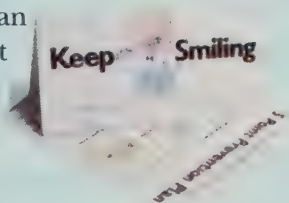


Appointment Cards

With the 5 Point Prevention Plan and space for the patient's next visit. Fits in their wallet.

Ask the CDA Order Section about personalizing these cards.

\$28.00 pkg. of 500



Bob Live

Bob has come to life as a lovable full-size costumed mascot. He'll bring smiles and excitement to activities and events in your office or your community. For more information, contact your provincial dental association or the CDA.

Dental Health Month is a service of CDA's Dental Awareness Program, an ongoing campaign dedicated to helping all Canadians keep their teeth Good For Life.

Order your Dental Health Month materials today by mail or call our toll-free numbers.

1. By mail: Complete and mail the attached form along with your cheque, money order or VISA/MC number.
2. By phone: To place your order call:
1-800-267-6354 (Western Canada, Nfld. and Labrador)
1-800-267-6364 (Eastern Canada)

Please have your VISA or MasterCard number and expiry date ready. Please call during business hours 8:30 to 4:30 Eastern time, Monday to Friday.

Shipping and handling: All orders will be sent by fourth class mail with prepaid shipping charges as follows: under \$29.99, \$4.50; \$30-\$99.99, \$7; over \$100, \$11.50; over \$250 call our toll-free numbers for applicable charges.

Please print or type

Complete and mail to: **The Canadian Dental Association**

Order Section, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6

Name:

Address:

Suite #:

City:

Province:

Postal Code:

Telephone:

CDA or CDHA Membership Number:

()

☐ Cheque / money order enclosed ☐ VISA ☐ MasterCard

Number:

Expiry date:

Item	Quantity	Price	Total
Bob Poster		1.35	
Buttons (Pkg. of 25)		14.00	
Stickers (Pkg. of 100)		9.50	
Celebration Poster		2.75	
Magnetic Bob		1.00	
Appointment Card (Pkg. 500)		28.00	
Balloon (Pkg. of 50)		14.00	
Display Balloon		14.75	
T-Shirt		15.50	
Sweatshirt* S M L XL		45.00	
Golf Shirt* S M L XL		45.00	
Radio Commercial		10.75	
Planning Kit		7.00	

Special Order (Only available if sufficient orders are received)

Display Bob		85.00	
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*Please circle shirt size

Please allow 4-6 weeks for delivery

Sub Total	→	
CDA & CDHA members take 25% off	→	
Sub Total A	→	
If ordering after Jan. 1/91, add 7% GST (No.: R106845209)	→	
Shipping (see above)	→	

Ontario residents please add 8% PST to Sub Total B

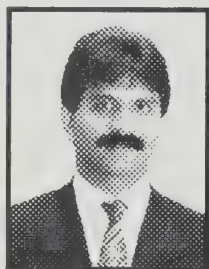
Sub Total A + Shipping = **Sub Total B**

8% PST (of Sub Total B)

(Total includes: Sub Total A, GST, Shipping charges and PST) **TOTAL**

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A Strategies Seminar



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Join ExperDent Consultants, Inc. at an exclusive training seminar on Specific Marketing Strategies for Your Practice.

Featured Speakers Include:

Imtiaz Manji of ExperDent, Canada's leading practice management consultant and **Kevin Nelson** of Kevin Nelson Associates, a leader in practice marketing in the United States.

You will leave this seminar knowing how to increase new patient flow, improve treatment acceptance, enhance your patient/dentist relations and advance to your next step.

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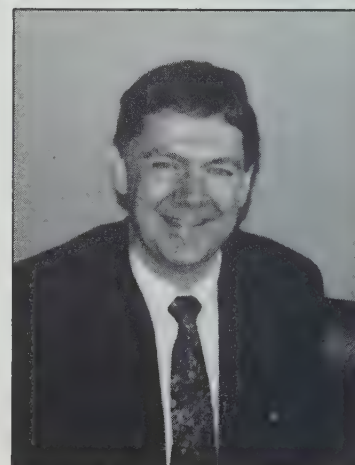
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Watch the May Journal for a Personal Interview with Dr. Denis Wells, Ottawa Endodontist and Former Ontario Dental Association President.

Dr. Wells tells his own story of what it is like to be Canada's first dentist to be a successful recipient of a heart transplant.



Dr. Denis Wells

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OF SOMEONE
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PRACTICE TRANSITION



Knowing the NUMBERS

Last month, I discussed the collections, marketing and continuing care monitors as being three of six critical indicators for practice success and wealth. This month, I will continue with the next three and will examine treatment acceptance, scheduling, and production monitors.

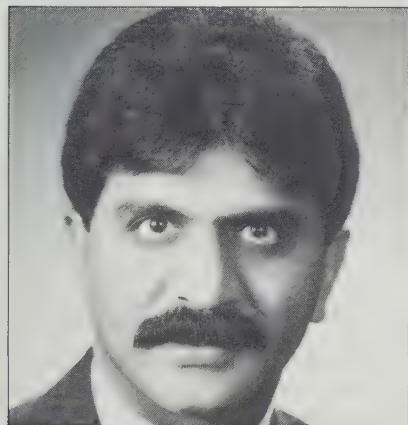
By way of summary, monitors serve a triple purpose:

■ **First**, they reveal areas of your practice that can be targeted for improvement by developing strategies and implementing initiatives to produce positive results;

■ **Second**, team performance can be measured in an unbiased, consistent manner, and this can increase team awareness and participation in the success of the practice;

■ **Third**, the effects of changing facilities, adding an associate, and forming or dissolving partnerships can be projected. Likely future success for a purchaser in a practice sale can be demonstrated.

While the three monitors examined last month dealt with administrative aspects of the practice, the three presented this month get right to the heart of dentistry.



Imtiaz Manji, President
ExperDent Consultants Inc.

In each of the three areas listed next, I have outlined some of the information

you should be tracking and some of the questions you should be asking about your practice on a monthly basis.

Treatment Acceptance Analysis

One of the major goals of any practice is to collect as much as produced, to produce as much as scheduled, and to schedule as much as presented. Since collections and scheduling depend on acceptance, the effectiveness of your practice in this area fundamentally determines your financial health. Many practices are "file cabinet millionaires" with unaccepted or unrepresented treatment plans lying to waste in patient charts. This monitor reveals treatment acceptance rates and the time lag between case presentations and actual acceptance. By monitoring these numbers, not only can you see your success levels and improve on them, but you can predict the number of case presentations you need to make to meet production targets comfortably.

Questions to Ask:

- How effective is your practice at motivating patients to accept treatment?
- Is treatment acceptance in your practice being affected by external economic conditions?
- Are your methods for treatment consultations with new patients effective?

Important Information:

- Total amount of treatment presented year-to-date.
- Total amount of treatment accepted year-to-date.
- Amount of treatment presented in new cases this month.
- Amount of treatment presented in the last 3 months and accepted this month.
- Total amount of predeterminations submitted year-to-date.

- Total amount of predeterminations approved year-to-date.
- Amount of predeterminations submitted this month.
- Amount of predeterminations approved this month regardless of when it was submitted.

Scheduling Analysis

Ineffective scheduling can rob a practice of valuable time and increase stress. Overly slack and busy times for the doctor can be eliminated through efficient scheduling of assistant time, doctor time and more assistant time. The most important aspect to scheduling is that every staff member understands how the schedule is created, and that everyone makes the same appointment decision in the same situation. In most practices, the dentist, the assistant and the receptionist will make the same appointment decision differently. Proper schedule planning should take into account all factors in the practice that affect how busy the clinical department is and should smooth out the schedule so that it is productive and without stress. This monitor reveals areas of weakness in scheduling and shows you how to intelligently plan appointments to reduce daily problems.

Questions to Ask:

- Is your schedule planned for optimum productivity?
- Are poor judgments in scheduling creating stress and causing you to often run behind in the schedule?
- Are your appointment plans for each procedure providing enough time with the dentist, the hygienist or the assistant as required?
- If you are currently using 15-minute units, how effective would scheduling be using more flexible 10-minute units?

Important Information:

- Total number of units scheduled.
- Number of excess units lost for

appointments that did not require the full amount of time scheduled.

- Number of short units taken for appointments that required more time than scheduled.
- Number of units lost due to open time (never scheduled), cancellations, and no-shows.
- Number of units recovered through short notice appointments.
- Number of patients arriving late for appointments.

Production Analysis

Many practices are kept busy everyday with piecemeal dentistry. At the end of the day, the team is tired and stressed due to the high patient flow and administration required. In these cases, major restorative dentistry does not get scheduled effectively and the constant flow of lower-valued short appointments creates inefficiency and dilutes production. The production analysis reveals the mix of appointments in your practice, shows you where productivity improvements can be made, and allows you to plan your schedule for better efficiency.

Questions to Ask:

- Is your schedule planned to allow all procedures to be appointed efficiently and productively?
- What factors are limiting the productivity of each profit centre in the practice?
- Are you being compensated adequately for the quality of care you provide, the level of skill you have acquired and the investments you have made in your practice?

Important Information:

- Total number of days, hours, and units worked for each producer.
- Total gross production per producer per day, per hour and per unit.
- Total dollar amount and number of units per producer presented and scheduled for each major category of dentistry as applicable to your practice.

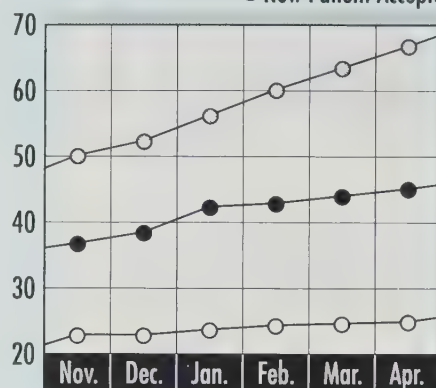
Make Informed Decisions

Many dentists are uncomfortable managing their practice because they feel they are "flying by the seat of their pants" most of the time. Monitors remove uncertainty from management decisions, and they provide direction and focus to the practice. The vital signs of your practice's health and wealth are:

- Collections;
- Marketing & Retention;

The Results Don't Always Speak for Themselves

TREATMENT ACCEPTANCE (\$ in thousands)
○ Total Presented
● Total Accepted
○ New Patient Accepted

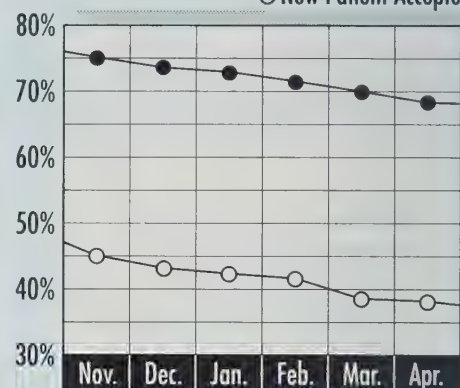


In the first graph, each column shows *Total Treatment Presented*, *Total Treatment Accepted* and *New Patient Treatment Accepted in dollars* for a hypothetical practice. The second graph shows the same data, but *Total Treatment Accepted* and *New Patient Treatment Accepted* are expressed as **percentages** of the *Total Treatment Presented*.

The two graphs represent different ways of displaying the same practice data, but the trends revealed are in conflict. The first graph indicates that the effectiveness of the practice is improving, while the second indicates it is deteriorating.

It has been said there are three kinds of lies: lies, damned lies, and statistics. Not doubt this adage is the result of statistics being selectively used to promote a certain point of view. The misinterpretation of statistics is no way to manage a practice. For this reason, it is

TREATMENT ACCEPTANCE (Percent)
● Total Accepted
○ New Patient Accepted



important to develop a full set of practice monitors so you can understand all the factors affecting your practice.

Without understanding the practice behind the numbers, graphs and percentages are meaningless. The graphs shown here could be good news to a practice trying to increase patient flow and treatment planning, but bad news to a practice trying to improve treatment acceptance rates.

When you implement your practice monitor program, spend the first few months letting the monitors show you what is normal for your practice. Once you understand how your practice typically operates and what parameters are in play, then begin to make changes for improvement. As the effectiveness of your new strategies is revealed, you will have the full background that is necessary to properly interpret monitor results and understand exactly how your practice is evolving.

- Continuing Care;
- Treatment Planning;
- Scheduling;
- Production.

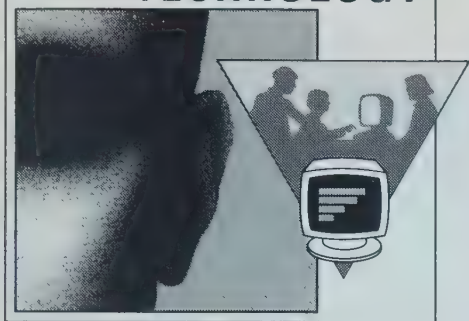
Armed with the information given to you through an effective monitoring program, you can intelligently plan the growing wealth of your practice. Strategies and procedures you implement can be evaluated for effectiveness; keep the ones that work and look for alternatives for those that don't.

Simply collecting data, filling out forms and filing monitor reports will not

improve your practice. To really get a handle on the management of your office, you must take the time every month to study the results. Then, consult with your own staff. While you may have only worked in one or two practices in your life, your team is likely to have a more diverse history and valuable hands-on experience with different strategies.

A monitor program isn't a quick-fix solution to practice management. It requires time to be useful. To be truly effective, monitors must be part of an overall management approach that is responsive to how the practice changes from month to month and year to year.

TECHNOLOGY



Analysing and graphing practice data using a home computer is a helpful and worthwhile step in practice management. It can take as little time as one hour for each of the monitors I've discussed in the last two issues. A total time investment of only six hours each month can give you tremendous control and understanding of what is really happening in your practice.

The startup time required to prepare a computer system for analysing and graphing data efficiently can be lengthy depending on your knowledge of computers. Before purchasing any system, you must be committed to invest the time to climb up the learning curve and reach a basic understanding of how the system and programs operate.

There is plenty of information available in your local bookstore or library on how computers and programs work. This discussion is designed to give you an outline of the basic system configuration you should be considering if you decide to purchase a home computer.

IBM-compatible computers are the most popular on the market. It is for this reason alone that I am focusing this discussion on IBM-compatible computer equipment. However, your needs will ultimately determine what kind of technology you purchase. I refer you to my discussion on evaluating technology in the *CDA Journal*, February 1991.

A Home Computer System

For each of the components below, I have listed the popular options available. The order of the options roughly reflects equal or increasing cost. The checked options are my recommendations for a good home computer system. I have tried to strike a balance between cost and performance. Less expensive options may be

chosen but these can degrade overall system functionality. Similarly, more expensive options can improve overall system functionality.

Processor

The processor is the "brain" of the computer and does all the calculations and work.

- 80286
- ✓ 80386SX
- 80386
- 80486

Math Co-Processor

The co-processor is optional and allows the computer to perform extremely complicated mathematical calculations faster.

- ✓ No
- Yes

Memory

Memory is used by the computer to temporarily store information while it is working on it.

- 1 Megabyte
- ✓ 2 Megabytes
- 4 Megabytes

Number of Serial Ports

Serial Ports are used to connect the computer to peripheral devices like a mouse, modem or some printers. The number of serial ports determines the number of serial devices you can connect.

- One
- ✓ Two
- Three

Number of Parallel Ports

Parallel ports are used to connect the computer to most printers. The number of parallel ports determines the number of parallel devices you can connect.

- ✓ One
- Two

Hard Disk Drive

The hard disk drive is used by the computer to permanently store information.

- 40 Megabytes
- ✓ 70 Megabytes
- 150 Megabytes

Floppy Disk Drive

The floppy disk drive is used to transfer data to and from the computer's hard disk.

- 5.25" (1.2 Megabytes)

- 3.5" (1.4 Megabytes)
- ✓ One of each

Monitor

The monitor is the computer's display screen.

- Monochrome Graphics
- VGA Monochrome
- ✓ VGA Color
- 12" Screen
- ✓ 14" Screen

Keyboard

The keyboard is used to type data into the computer.

- Standard
- ✓ Enhanced

Mouse

The mouse is used by many programs to point at the screen, select or move data.

- LogiTech Serial
- ✓ Microsoft Serial
- Microsoft Bus

Printer

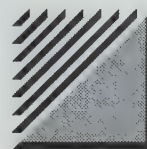
The printer is used to produce reports on paper.

- 9-pin Dot Matrix
- ✓ 24-pin Dot Matrix
- Laser Printer

Software

Software (or programs) is the instructions computers follow to complete tasks for you. There are many different kinds of software. The kind of software that is best for numerical analysis and graphing is called "Spreadsheets". The two most popular spreadsheet programs are Lotus 1-2-3 and Microsoft Excel, and both are suitable for analysing and graphing data.

A final word of warning. When you buy, be sure to purchase from a reputable dealer who provides good service and support should something go wrong. Ask dealers about the kind of support they provide. The little extra it may cost you will pay off in the long run. Δ



Clinically Speaking:

Study Shows 98.2% Plaque Removal with New INTERPLAK®

- After brushing with INTERPLAK®, patients' teeth showed an average of 98.2% plaque-free surfaces. With manual brushing, the same patients averaged only 48.6% plaque-free surfaces.

Following is an edited excerpt from a clinical study published in the Compendium of Continuing Education in Dentistry, Supplement No. 6, 1985. The study was performed by Eric J Coontz, D.D.S., M.S., Loyola University.

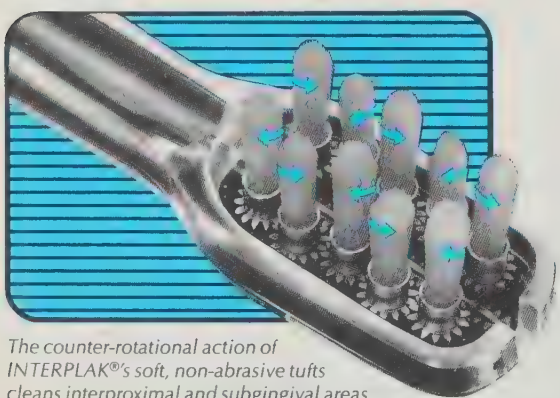
METHODOLOGY:

A two-week, crossover study was conducted involving 30 patients to compare the effectiveness of the INTERPLAK® Instrument versus manual brushing. Patients received professional oral hygiene instructions and were given a manual toothbrush to use as they normally would. Their dentitions were stained with a disclosing solution and location of residual plaque was recorded. The same patients were then given the INTERPLAK® Instrument to use at home. At the end of one week, a final plaque index was recorded. See Table for percentages of plaque-free surfaces for 15 randomly selected patients.

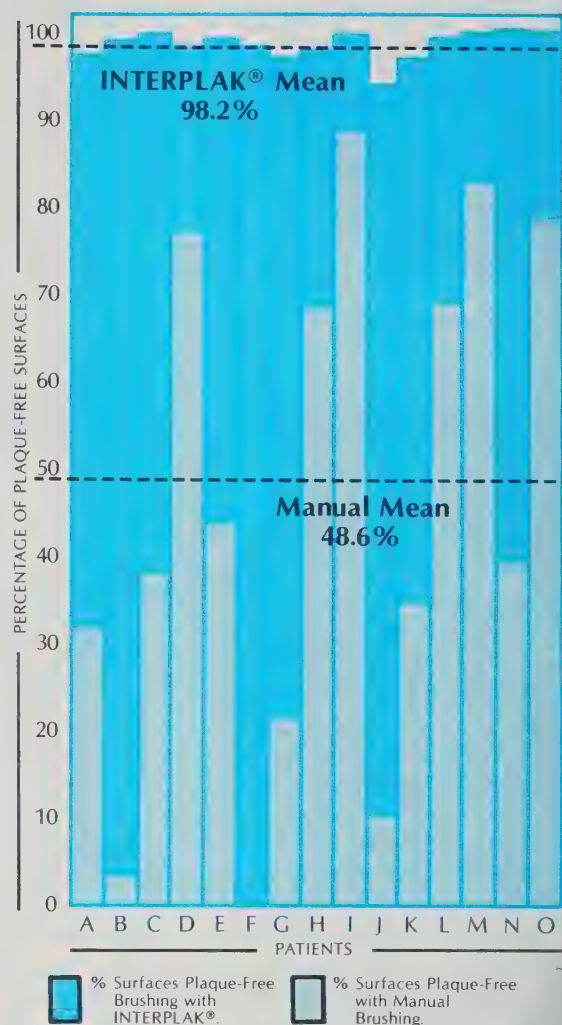
RESULTS:

INTERPLAK® proved superior to manual brushing with a score of 93.5% to 100% plaque-free surfaces with a mean of 98.2%, versus manual brushing which showed a range of 0.0% to 88.7% plaque-free surfaces and a mean of 48.6%.

A paired sample T-test showed the difference in scores to be statistically significant, well beyond the 99% level of confidence.



The counter-rotational action of INTERPLAK's soft, non-abrasive tufts cleans interproximal and subgingival areas. Each tuft rotates 4200 times a minute and reverses direction 46 times a second.



FOR MORE INFORMATION

This is one of many clinical studies completed to date regarding the safety and efficacy of INTERPLAK®. For a complete copy of the published results, or for more information about the INTERPLAK® Instrument, simply call 1-800-263-5890.

Visit our booth 323 at the ODA Convention in May.

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HOME PLAQUE REMOVAL INSTRUMENT

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The INTERPLAK® oral hygiene device is acceptable as an effective cleaning device for use as part of a program for good oral hygiene to supplement the regular professional care required for oral health. Council on Dental Materials, Instruments and Equipment American Dental Association.



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DENTAL UPDATE

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ASH TEMPLE
SALES REPRESENTATIVE
FOR A
FREE SAMPLE**



UPDATE

Introducing Thermafil's Star Performers.

Now, You Can Buy a Variety Pack Of Our Six Most Popular Sizes.

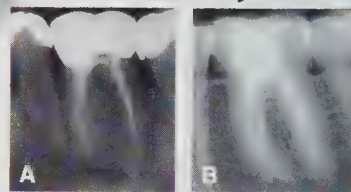


For a limited time, we've assembled our "star performers" in a special Variety Pack. The star studded cast includes five each of our six most popular sizes (20-45) for a total of 30 Thermafil devices.

With Thermafil, The Stage Is Set For Increased Efficacy.

Thermafil is a unique combination of a patented central carrier and thermally plasticized gutta percha which offers exceptional apical control. During insertion, the gutta percha apically precedes the carrier and obturates the canal to the apex, filling available lateral canals at the same time.

Thermafil.
Award Winning
Performance Everytime.



A. Lower molar filled with 3 #20 Thermafil devices

B. Lower molar with four separate canals. The mesial roots were filled with #25 Thermafil devices and the distal roots were filled #30 Thermafil devices.

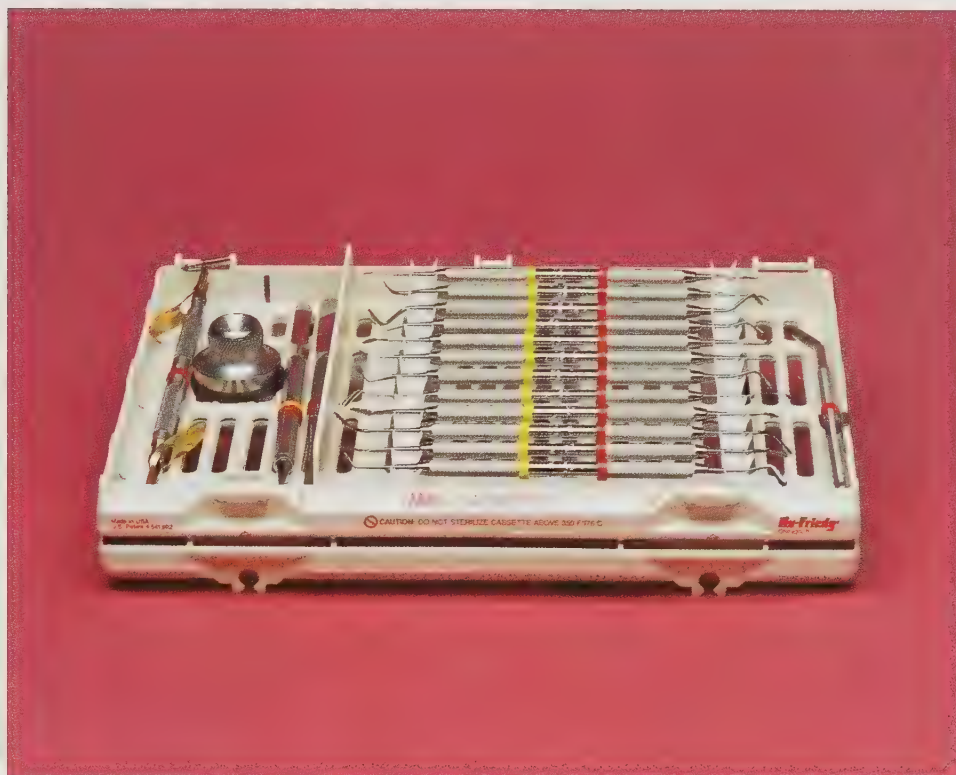


THERMAFIL®

Hu-Friedy®

Operative & Composite Instruments

- Hand-Crafted with high corrosion and high carbon content.
- Durable and Sharp.
- Triple Tempered for maximum flexibility, and strength.
- Optimal weight for less hand stress during procedures.
- Composite Instruments are polished to allow ease in handling resin materials.

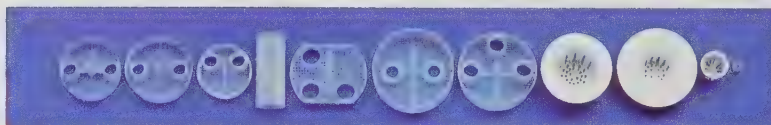


Note: IMS Cassette shown in above illustration is not included in the operative and composite offer. Please see your Ash Temple representative for more information.

INNOVATIVE INFECTION CONTROL PRODUCTS by Pinnacle

Dispos-a-Trap®

The Dispos-a-Trap® filter is a totally disposable filter designed to replace the present trap filter in your evacuation unit. It reduces the possibility of infection and contamination. It improves the performance of your suction system and reduces infectious aerosol. It does all this while eliminating one of the most hazardous and unpleasant tasks in the dental office, cleaning the infectious waste that is present in your trap, cuspidor, or saliva ejector filter.



Model:	5501	5502	5503	5504	5505	5506	5507	6100-C	6200-C	6300-C	5508-S
Diameter:	2 1/8"	2 1/4"	1 7/8"	1"	3 3/4"	2 15/16"	2 3/4"	Universal	Universal	Universal	Universal
Model 5501:	Fits A-dec models with plastic canisters.										
Model 5502:	Fits A-dec models with metal canisters.										
Model 5503:	Fits models by Belmont, Biotec, Chayes, Den-Tal-Ez, Dentech, Pelton & Crane, Proma and other manufacturers.										
Model 5504:	Fits Den-Tal-Ez models with wire screen filters.										
Model 5505:	Fits Pelton & Crane Spirit with white plastic canisters.										
Model 5506:	Fits Den-Tal-Ez models with black plastic filters.										
Model 5507:	Fits Midwest 210 models.										
Model 5508-S:	Fits all Saliva Ejectors.										
Model 6100-C:	Fits most Cuspidor Bowls.										
Model 6200-C:	Fits Siemens, plus many cuspidors with small diameter openings.										

Box of 144

Model 5508-S/Box of 72.

Evac-u-Trap®

The Evac-u-Trap® is a totally disposable canister, lid, mesh filter and gasket designed to replace the present canister and filter in your central vacuum pump. Remove this canister, screw on the lid and simply throw it away. The infectious material is sealed in the canister where it cannot spill or contaminate the workplace. Nothing needs to be cleaned and you can be assured that you have minimized all contact with infectious material.

Model 2200 fits:
Air Techniques Vacstar models
Den-Tal-Ez 1 & 2 hp single models
Ohmeda, Matrx All models
Turbine Industries Whirl Vac models
Plus, a number of other units.

Model 2300 fits:
Den-Tal-Ez Dual models made after 1978.

Model 2400 fits:
Dentsply (made aft. 78) MVS .75, 1.5, 2.0, 4.0 models
Den-Tal-Ez Dual models made before 1978.

Model 2500 fits:
Dentsply MVS Junior models

Model 2600 fits:
Ritter Vacuum Air models

	A	B
Model 2200	2 3/4"	3 3/8"
Model 2300	3 1/2"	4 3/8"
Model 2400	4 1/2"	5 1/8"
Model 2500	3 1/2"	6 3/4"
Model 2600	3 1/2"	4 3/8"



The totally disposable Evac-u-Trap® comes complete with canister, lid, mesh filter and rubber gasket.

Model 2200 - 12/box
Models 2300, 2400, 2500 & 2600 - 8/box

Light Sleeve

The Light Sleeve™ is a totally disposable plastic sleeve made to cover "T" style light handles. The design of the Light Sleeve™ allows the user to easily slip the plastic sleeve over the handle, yet its unique design prevents removal while in use. The Light Sleeve™ eliminates the need for plastic wraps, or the use of aluminum foil, giving your operatory a neat, clean appearance.

Dimensions W 4" L 5 3/4"

Model 3600

Box of 500 sleeves



Part Of A Full Family Of Barrier Products By Pinnacle

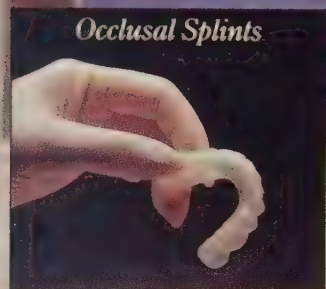
• Tray Sleeve • Chair Sleeve • X-Ray Sleeve • Syringe Sleeve • Tube Sleeve • Cover-All



Implant Stents



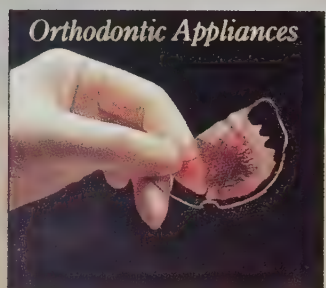
*Custom
Impression Trays*



Occlusal Splints



*Direct Relines
Emergency Repairs*

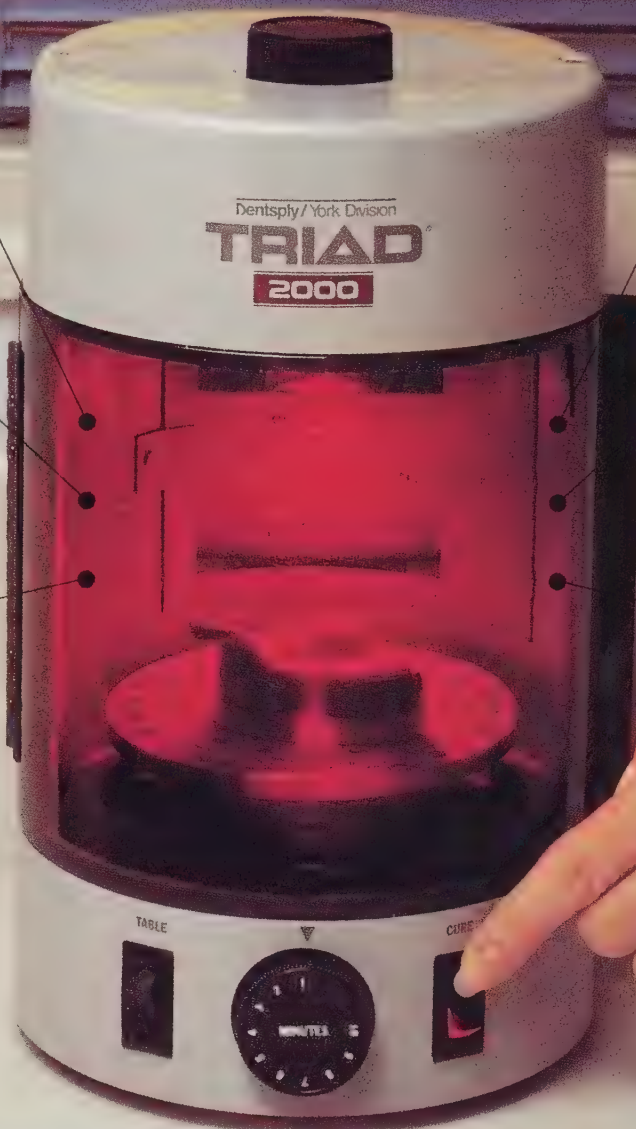


Orthodontic Appliances



*Provisional
Crowns/Bridges*

Introductory Offer!
Until June 30, 1991
Free Accessory Package
with each unit purchased.



TRIAD® 2000 Unit

Light-Curing Power for the 21st Century

Any time you need a custom tray, denture reline, stabilized baseplate, or any of the other acrylic appliances you routinely use, you can create it . . . easily and immediately right at chairside with the **TRIAD 2000 System**. Instead of completing the procedure later, you keep on going. Possibly saving an extra appointment, definitely saving time.

TRIAD techniques are very easily learned. The TRIAD light cure materials are pre-mixed, ready-to-use and ready-to-cure on command. There's no monomer odor or mess. Just the rewarding experience of completing more patient care in less time. And that will please your patients, too!

Let us demonstrate how easily you can add the benefits of the new, economical **TRIAD 2000 Light Curing Unit** to your practice.

Contact your Ash Temple Representative to try this New Triad 2000 right in the comfort of your own office.

TRIAD® 2000™ System.

Dentsply

DEMETRON

OPTILUX 401 ...

... Bringing new technology to curing light.

- The first digital curing light, (integrated circuits), C.S.A. approved
- Packs more power and performance; the only light with 75 watts "boosted bulb" technology
- Finger-controlled on-off activation
- Fully calibrated electronic timer from 10 to 60 seconds with beep counter
- Revolutionary "forced air" cooling system never over-heats and shuts off automatically
- Comes with 11 mm light guide, protective light shield, a Kerr Herculite syringe and metal gun holder
- The only light recommended by the American Society for Dental Aesthetics and rated #1 by Clinical Research Associates (C.R.A.)



CURING RADIOMETER

Composites are hardened only by light at the blue end of the visible spectrum (400 to 520 nanometers).

Many curing lights emit light outside the curing range which contributes only to heat or glare generated at the curing site.

The Demetron Radiometer is designed to measure only useful curing light energy and to be insensitive to energy outside the useful range.

HAVE YOU TESTED YOUR CURING LIGHT LATELY?

NEED FOR RADIOMETER:

In normal use all curing lights deteriorate from a number of causes, even before the lamp burns out, such as:

1. Blackening or frosting of the bulb
2. Loss of reflectivity of the lamp reflector
3. Contamination or breakdown of filter coatings
4. Composite debris on the light guide
5. Filter breakage, particularly in flexible bundle designs.

From any cause, loss of light output results in varying degrees of undercuring of the restorative material.



DEMETRON
RESEARCH
CORPORATION

See your Ash Temple Representative for a Demonstration



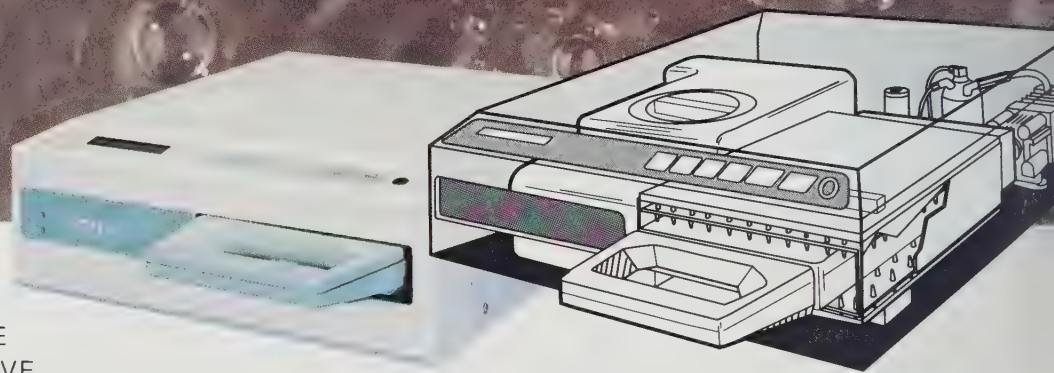
Optimum Imaging System for Panoramic, TMJ, Cephalometric Radiology

- Computerized Self contained Control Panel with membrane Switching
- Microprocessor controlled rotation gives wide focal trough for sharp panoramic view
- Simplified patient positioning with 3 light beams, aseptic bite fork and head holding rods
- Ceph. add-on capability for right or left Pan/Ceph
- Automatic program selection of Exposure Factors
- TMJ Program allows 2 open and 2 closed views of one film
- Lanex rare earth film technology, for increased detail and reduced radiation
- 40'' x 30'' space requirement is the smallest of all current Panoramics
- Belmont 2/7 year warranty and service available across Canada



The Most Significant Advance In Instrument Sterilization...

Since Boiling Water



STATIM CASSETTE
AUTOCLAVE
an innovative development in
instrument care and sterilization.

*Put your instruments back
to work STAT:*

- 6 min. cycle unwrapped/12 min. wrapped.
- Means fewer instrument sets required.
- Can turnover up to 250 instruments/hr.

*Safe enough for your most
valuable instruments:*

- Short steam exposure time.
- No overheating or temperature spiking.
- Forced air venting reduces oxidation.
- Automatic air drying.
- Fresh water every cycle.

Unique cassette design. User friendly controls.

The SciCan STATIM® is a compact, table-top autoclave designed for efficient, economical and rapid steam sterilization of health care instruments.

*With the SciCan STATIM, biological hazards
and instrument damage are eliminated.*

A product of **SciCan**
Science Serving Health

® Registered trademark



PERFOURM

Vinyl Polysiloxane
Impression Material



- Ample Working Time
- Flows Only Under Pressure
- Eliminates Retakes
- Dimensionally Stable for Hours
- Elastic Enough to be Removed From Deep Undercuts
- Memory Without Distortion

SPECIAL OFFER!

BUY PERFOURM PUTTY AND RECEIVE FREE
2 Cartridges (Medium Set)
Mixing Tips
1 Adhesive
1 Picnic Cooler Bag

SPECIAL 1 Cartridge Gun 1/2 Price!

The Best & The Brightest From Midwest

The quality and reliability of a handpiece can be measured as much by the confidence of the professionals who use it as by its actual performance. You recognize **the Best** in a Midwest handpiece for its...

- Quality of cut
- Superb balance
- Low noise
- Autoclavability
- Unsurpassed reliability

Now when you add Midwest FIBER OPTICS to your operatory, you'll see what we mean when we say "...**the Brightest**"

- Unsurpassed visibility for reduced eye fatigue.
- The ideal light value for your peak performance.
- Rugged durability to withstand repeated autoclaving.

Only Midwest has made a commitment to perfecting both fiber optic technologies:

- Integral Light Source - the light source is a small bulb at the base of the handpiece.
- Remote Light Source - light is generated in a remote unit and delivered to the handpiece through the connecting hose.

Both options offer advantages, and only Midwest offers you the choice.

See your **ASH TEMPLE** Representative
for a demonstration.

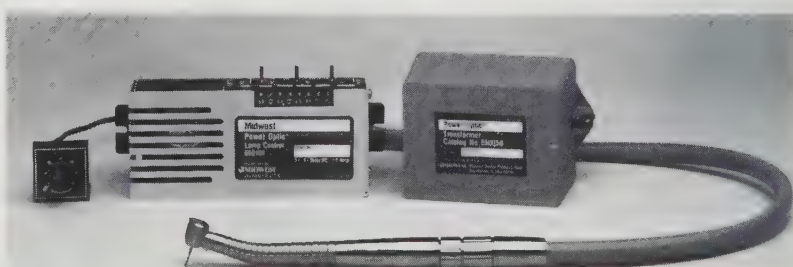
Power Optic Handpiece Lighting

A compact system with a small bulb behind the handpiece. The Power Optic generates a white light which is 50% brighter than before.



New Quick-Connect Swivel

The new twist lock swivel connection on Midwest high speed handpieces is designed to ISO compatibility. The new coupling makes handpiece changing a matter of an effortless twist and click. Yet the connection is as secure as any full screw coupling.



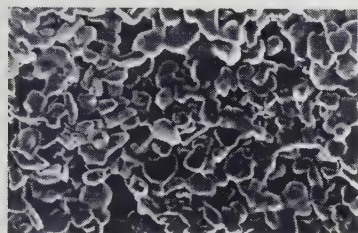
EPITEX

EPITEX™ Finishing/Polishing Strips

- Ultra-thin (.05 mm) and flexible
- Ideal for restorations and stain removal
- Color-coded in handy work station
- 4 grades of coarseness



EPITEX strips are manufactured from 2 Melinex® strips in a patented process of EPITROPIC particle attachment. Since no adhesive is used, EPITEX contributes to a smoother surface without a gummy adhesive deposit. Half the thickness of other strips, EPITEX allows easier penetration into tight interproximal contacts.



S.E.M. X 200 of
Conventional Finishing Strip
showing particles held
in place by a layer
of adhesive.

S.E.M. x 200 of
EPITEX showing particles
embedded in the epitropic layer
and illustrating the
absence of adhesive.



IMPRESSION TRAYS STAINLESS STEEL

- Available in solid, perforated and partial
- "Wrapped" arch handle for easy removal
- Brilliant finish for good looks, patient acceptance
- Can be repeatedly sterilized by any method (autoclave, chemiclave, dry heat, and immersion)



Similar in design to COE's famous plated trays, but cast in high quality Stainless Steel. The handles and rims are welded, not soldered. This eliminates "weak spots" associated with soldering. The trays resist tarnish, corrosion and electrolytic reaction with other metals.

DISPOSABLE SPACER TRAYS

- ALL SIZES available in perforated and solid styles
- Rigid, high quality plastic
- Anatomically designed
- Zigzag spacer

DISPOSABLE CHECK-BITE TRAYS™

- For double arch impressions
- Sturdy Handle for easy placement and removal
- Available in 2 styles – posterior and anterior
- Rigid plastic for added accuracy



LATEX GLOVES

ALADAN GLOVES

1 – \$10.50

20 – \$ 9.50

KENDALL CURITY GLOVES

1 – \$11.00

20 – \$ 9.75

J. & J. MICRO TOUCH GLOVES

1 – \$17.54

10 – \$16.67

REGENT BIOGEL GLOVES

1 (25 prs.) \$37.95

6 (25 prs.) \$35.60

VISIT ASH TEMPLE DISPLAY AT
ALBERTA DENTAL ASSOCIATION CONVENTION
May 30 – June 2, 1991

MICROBEX
MICROBIAL CONTROL
CONTROLE MICROBIOLOGIQUE



4 L Instrubex G \$26.95
PLUS FREE ACTIVATOR

4 L Instrubex E \$29.95

4 L Surfex E \$29.95

Combo Pak \$109.95
2 x 4 L Instrubex E and
2 x 4 L Surfex E

JET

Diamond Instruments



**BUY 15 GET 5 FREE
PLUS
Free Molar Bank
(While Quantities Last)**

VISIT ASH TEMPLE/SERVIDENT DISPLAY
AT LES JOURNÉES DENTAIRES, May 26-30, 1991
Booth Numbers 231, 233, 235, 330, 331, 332,
333, 334, 335, 430, 432, 434.

J. & J. DISPERSALLOY

500 1 Spill \$403.92

500 2 Spill \$484.24

ASH TEMPLE

Single Use Needles



Buy 1000 Get 2 Re-cappers FREE

ASH TEMPLE ANAESTHETIC

Mepivacaine 2%
Mepivacaine 3% or
Lidocaine 1/1,000,000



BUY 20 GET 2 FREE

CAULK **FREE**

Vari-Mix III Amalgamator
with purchase of Valiant/Valiant PH.D.
1 Bulk – 1 Spill, 2 Bulk – 2 Spill
and 1 Bulk – 3 Spill

SASKATCHEWAN DENTAL ASSOCIATION
CONVENTION
June 5 to 8, 1991

THERMAFILTM Endodontic Obturators

Now You Can Completely Obturate
Any Root Canal in Less Than 30 Seconds



Starter Kit
\$189.95

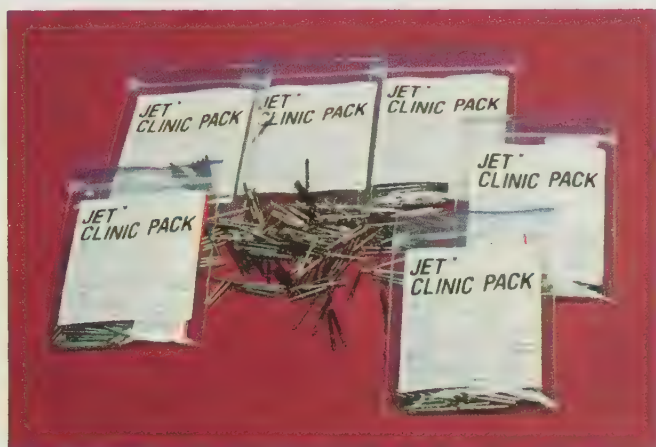
Polyjel NFTM POLYETHER IMPRESSION MATERIAL



DOUBLE PAK	\$ 90.00
10 PAK	\$ 369.00
20 PAK	\$ 708.00
40 PAK	\$1,269.00

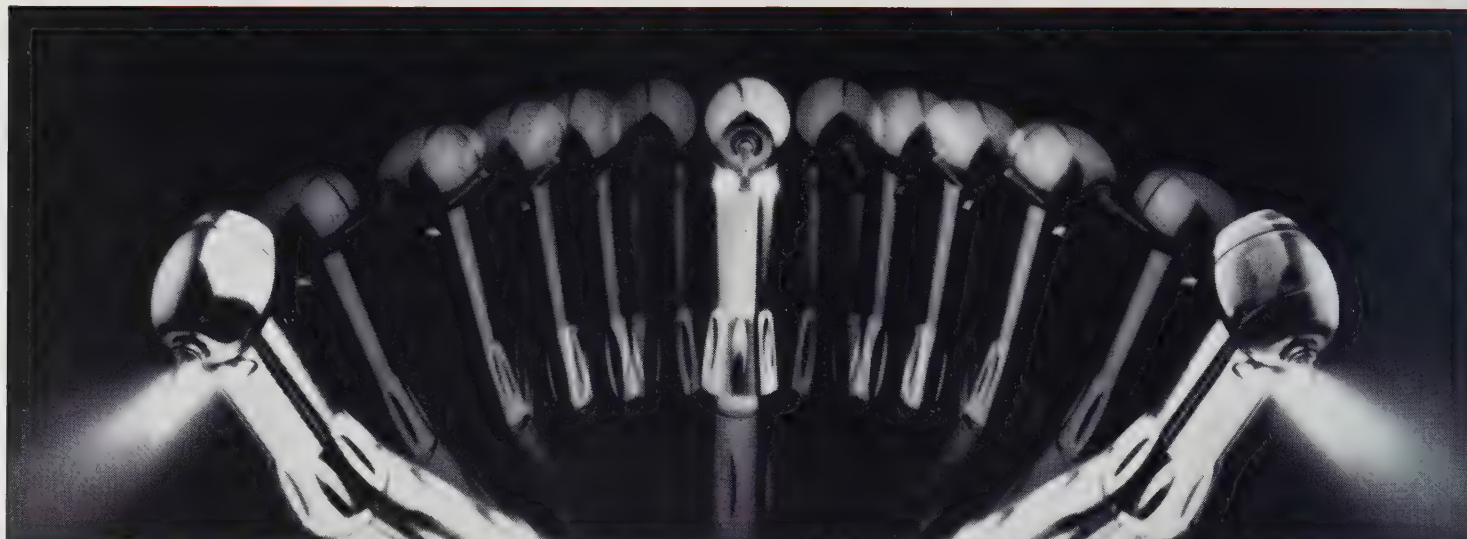
VISIT ASH TEMPLE DISPLAY AT:
Ontario Dental Association Convention
May 2, 3, and 4, 1991
Booth Numbers 1309, 1311, 1408, 1409, 1410,
1411, 1505, 1507, 1508, 1509, 1510, 1511
1604, 1606, 1608, 1609

JET CARBIDE BURS 100 Bulk Clinic Pak



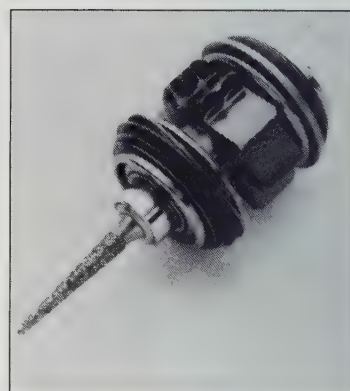
Regular Cutting	\$135.00
Trimming & Finishing	\$375.00
Fine Cross Cut	\$375.00
Fine Finishing	\$438.00

We've just made the most advanced high speed fiber optic handpiece system even better!



***First, the exclusive, patented
COLORight® Breakthrough.***

*Produces color-corrected white light
illumination for improved visual acuity
and reduced eye strain.*



**COLORight® LIGHT
SOURCE**

***Now, the exclusive, patented
LUBE FREE™ Turbine.***

COLORight® Fiber Optic Handpiece System Features:

- Patented LUBE FREE Turbine with Ceramic Ball Bearings
- Autochuck
- 360° Quick Disconnect Swivel
- Electropolished Stainless Steel Surface
- Heat Resistant Fiber Optics and Internal "O" Ring Components
- Aseptic Handpiece Tubing
- Autoclavable and Chemiclavable

Star® Dental

de™ DEN-TAL-EZ, INC.

*Star Dental's Full 1 Year Warranty—
The only manufacturer to cover for a full year:*
• COLORight® Fiber Optic Electrical System
• COLORight® Aseptic Fiber Optic Tubing
• 430 SWL™ High Speed Fiber Optic Handpiece
with LUBE FREE Turbine, 360° Swivel and Internal
Fiber Optic Bundle Assembly • Titan® L Low Speed
Motors (excludes Titan Low Speed Angle Attachments
and Krypton-Halogen Lamp)

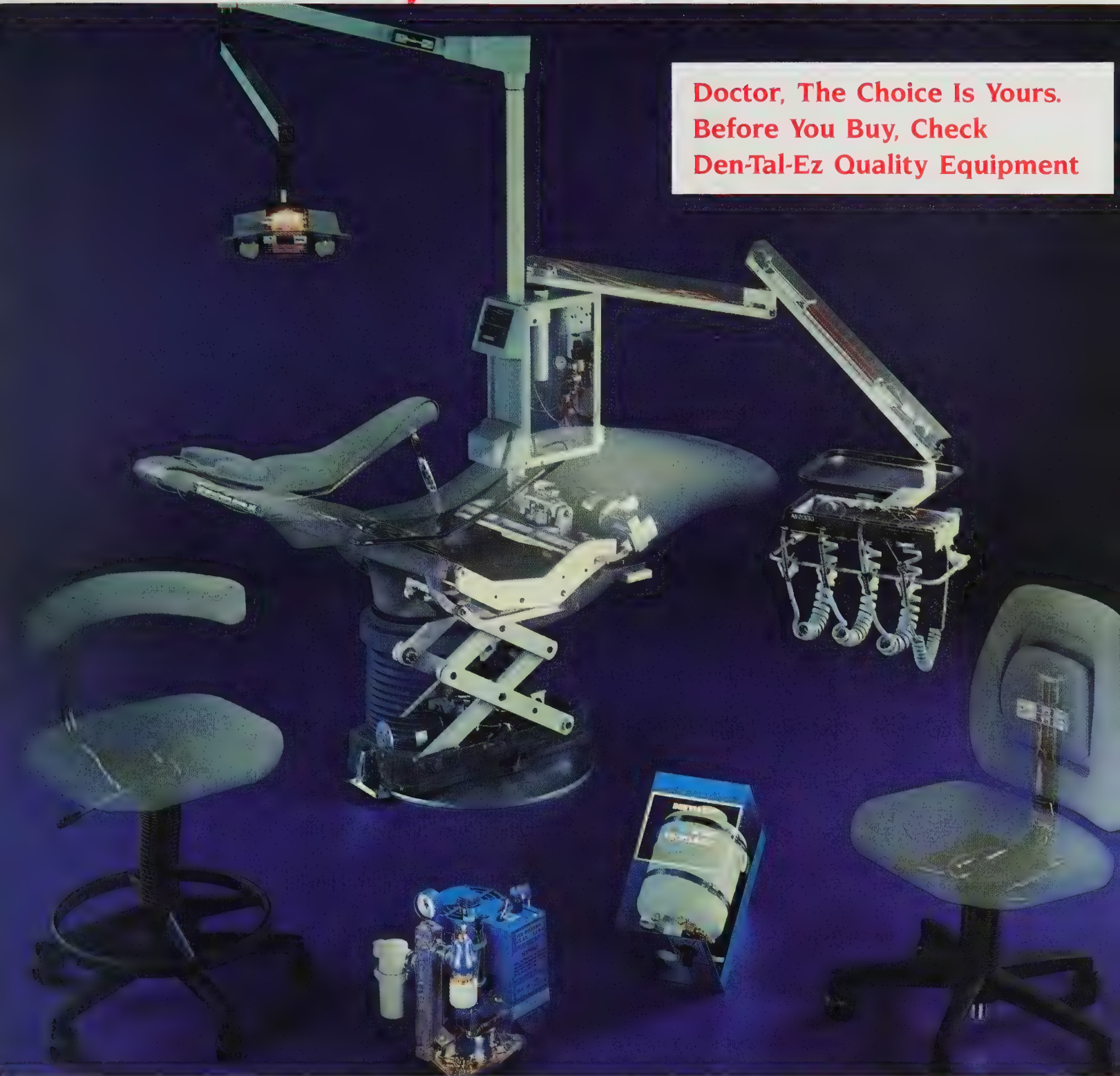


See your Ash Temple Representative for more details

ASH TEMPLE

The Anatomy of a Dental Treatment Room . . . Quality from the Inside Out

**Doctor, The Choice Is Yours.
Before You Buy, Check
Den-Tal-Ez Quality Equipment**



The original Den-Tal-Ez chair was designed and engineered for team dentistry. It was built with an aseptic surface and a commitment that it would work and it has for 30 years – we made some changes – thinned the back – increased the weight for the lift – flattened the line of the tow board – added auto return – added a surgery chair and a programmable model – but like Mercedes, we did not sacrifice the basic design – we retained the independent back and seat motors for maximizing patient positioning and minimizing the operating team's comfort.



DEN-TAL-EZ, INC.

Mfg's of Stools, Star Handpieces, Lights, Vacuums and Units

||||| **ASH TEMPLE**

Prisma **APH**TM

Innovations you can put into practice.

ALL-PURPOSE HYBRID COMPOSITE

EnhanceTM

Composite Finishing & Polishing System



VALUE: \$79.00

SPECIAL OFFER!

With the Purchase of:
5 Caulk AP.H Compules **or**
9 Caulk AP.H Syringe Refills

FREE

1 Caulk ENHANCE
Finishing and Polishing Kit

Note: (Offer expires June 30/91)

Reprosil[®]
Cartridge System

SPECIAL OFFER!



With the Purchase of:
4 Reprosil Cartridge
2-Packs of Light, Regular,
or Heavy Body.

FREE

1 Assorted Box of Polytrays

VALUE: \$26.70

Note: (Offer expires June 30/91)

Caulk
Dentsply

UPDATE

Prisma **APH**TM

Innovations you can put into practice.

ALL-PURPOSE HYBRID COMPOSITE



SPECIAL OFFER!

With the Purchase of:
1 CAULK AP.H COMPULES **or** SYRINGE KIT

FREE 1 Video Tape:
"OBTAINING OPTIMUM RESULTS
WITH PRISMA AP.H.,
by Dr. Gordon J. Christensen.

VALUE: \$100.00

(Offer expires June 30/91)

Ash Instruments Dentsply

TRADE UP TO QUALITY!



GUARANTEED FOR LIFE!

ASH FORCEPS SAVE 25%

OFFER: Send Ash Temple your old, worn out forcep in a sterilized bag, and we will send you a voucher worth 25% off the purchase price of an Ash forcep of your choice.

(Note: Offer expires December 31, 1991)

Contact your Ash Temple representative for details.

**Caulk
Dentsply**

ASH TEMPLE



ONE MINUTE FLAT!

Nothing disinfects surfaces faster.

Most surface disinfectants take 3 to 15 minutes of continuous surface wetness to kill micro-organisms. Now, with FULL-SPECTRUM Surfex-E, you get proven one minute disinfection of operatory surfaces.

- Cost-effective (reduced staff time, faster patient turn-around)
- Subjected to extensive microbiological testing (results available upon request)
- Pleasant lemon scent and non-corrosive formulation make Surfex-E a pleasure to use

Part of the Microbex Family

Innovation, both in product and technique, is a crucial part of

Microbex's success. Our unique pump dispensing systems eliminate waste and mess while batch by batch activation provides virtually unlimited shelf life. The complete Microbex disinfection system, covering all areas of the dental clinic, leads the way in efficient and effective office asepsis.

Leaders in Microbial Control

Microbex, through our fully equipped research laboratory facilities, offers a full range of microbial control services, including computerized spore testing for Chemiclave®, Autoclave and Dry Heat Sterilizers. Put our experienced team of chemists and microbiologists to work for you today.

For more information on Surfex-E, the rest of the Microbex asepsis product line or our microbial control services, simply fill out and mail the handy postage-paid card opposite.

MICROBEX

MICROBIAL CONTROL
CONTRÔLE MICROBIOLOGIQUE



Leaders in Microbial Control

680 Denison Street,
Markham, Ontario, L3R 1C1
Telephone (416) 477-5442,
Fax (416) 477-0740

DISTRIBUTED IN CANADA BY ASH TEMPLE LTD.



MCC

&
CABINETS AND CONTROLS

NEW
FOR THE 90's

MODULAR SYSTEM 7R

Rear Delivery/Rear Support

- Complete with X-Ray Viewer on Swing arm, 3 Tubs and 6 Trays
- Optional Stainless Steel or Enamel finish sink, soap, faucet
- MCC SL500 Swivel Head Control (3 HP automatic)



SYSTEM 7BX-R

- Less sinks and upper storage



SYSTEM 7A-R

- Less assistant's sink

Many more variations and cabinet styles available. Check with your Dealer Representative for more information.

MODULAR & CUSTOM CABINETS LTD.

BISCO INTRODUCES THE 4TH GENERATION UNIVERSAL ADHESIVE SYSTEM



ALL-BOND

ONE BONDING SYSTEM FOR ALL YOUR BONDING NEEDS

The **ALL-BOND** system bonds to dentin, enamel, metal (precious and non-precious) and composite

- Quick reference step-by-step procedure label on tray
- Easy to follow instruction cards for all techniques
- Compatible with all composite brands



ALL-BOND OPAQUER/C&B

Companion kit for metal bonding, crown and bridge cementation

- Five shades of opaquer to attain all Vita Shades



"It's faster, easier on the patient, and I don't get as tired."

Hygienists agree:
Dentsply air polishing
makes a more effective
prophy a breeze.*



PROPHY-JET® 30 Air Polishing Unit saves time and minimizes fatigue while polishing coronal surfaces and hard to reach pits and fissures. One study indicated that 94% of the patients treated preferred air polishing to hand instrumentation,

citing... more thorough stain removal... less chair time... more comfort (no heat, no scratching noise, no pressure of instrument against teeth).¹

CAVI-JET® 30 Unit combines Cavitron® ultrasonic scaling and Prophecy-Jet air polishing capabilities for superior efficiency in one compact unit. The dual-function handpiece is small and light. It's comfortable to hold and much less fatiguing than hand scaling and polishing.



CAVITRON 3000 removes calculus faster and more efficiently than any other prophylaxis method. Plus, the Cavitron 3000 Unit has been proven to be less stressful and more comfortable than hand scaling.

"I would recommend the use of Air Polishing to all professionals who want to improve their efficiency and time utilization."

*Data on file at Dentsply/Equipment Division.

¹As published in Clinical Research Associates Newsletter, Vol. 5, Issue 10-October 1981.

©1990 Dentsply International Inc.



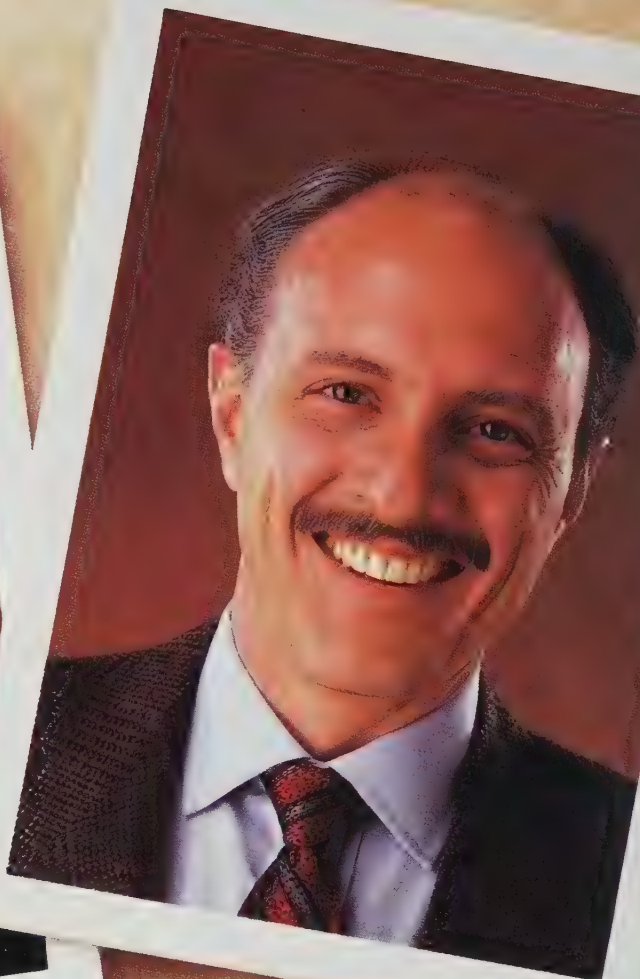
Dentsply/Equipment Division

ASH TEMPLE

IT TAKES TIME TO APPRECIATE THE BEAUTY OF SILUX PLUS™ RESTORATIVE.

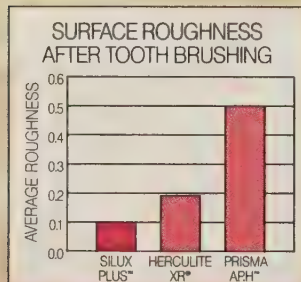


YEARS AGO



TODAY

If you want dental restorations that look more beautiful now, and well into the future, switch to 3M's Silux Plus restorative. Because Silux Plus restorative is a microfill, it polishes to a smooth surface and retains its natural luster even after tooth brushing.



Silux Plus restorative offers a wide range of useful shades, so it's easy to match to the color of natural teeth. This makes it ideal for your highly esthetic applications. It's also color stable to ensure that a restoration which looks good now will also look good in the future. What's more, the Silux™ name has been proven in ten years of use, and its success continues today with Silux Plus restorative.

Create dental restorations that look more natural now and for years to come with Silux Plus microfill restorative.

©1991 3M 36USC380 Test data on file at 3M.

Herculite XR is a registered trademark of Kerr Manufacturing Company. Prisma APH is a trademark of Dentsply International Inc.

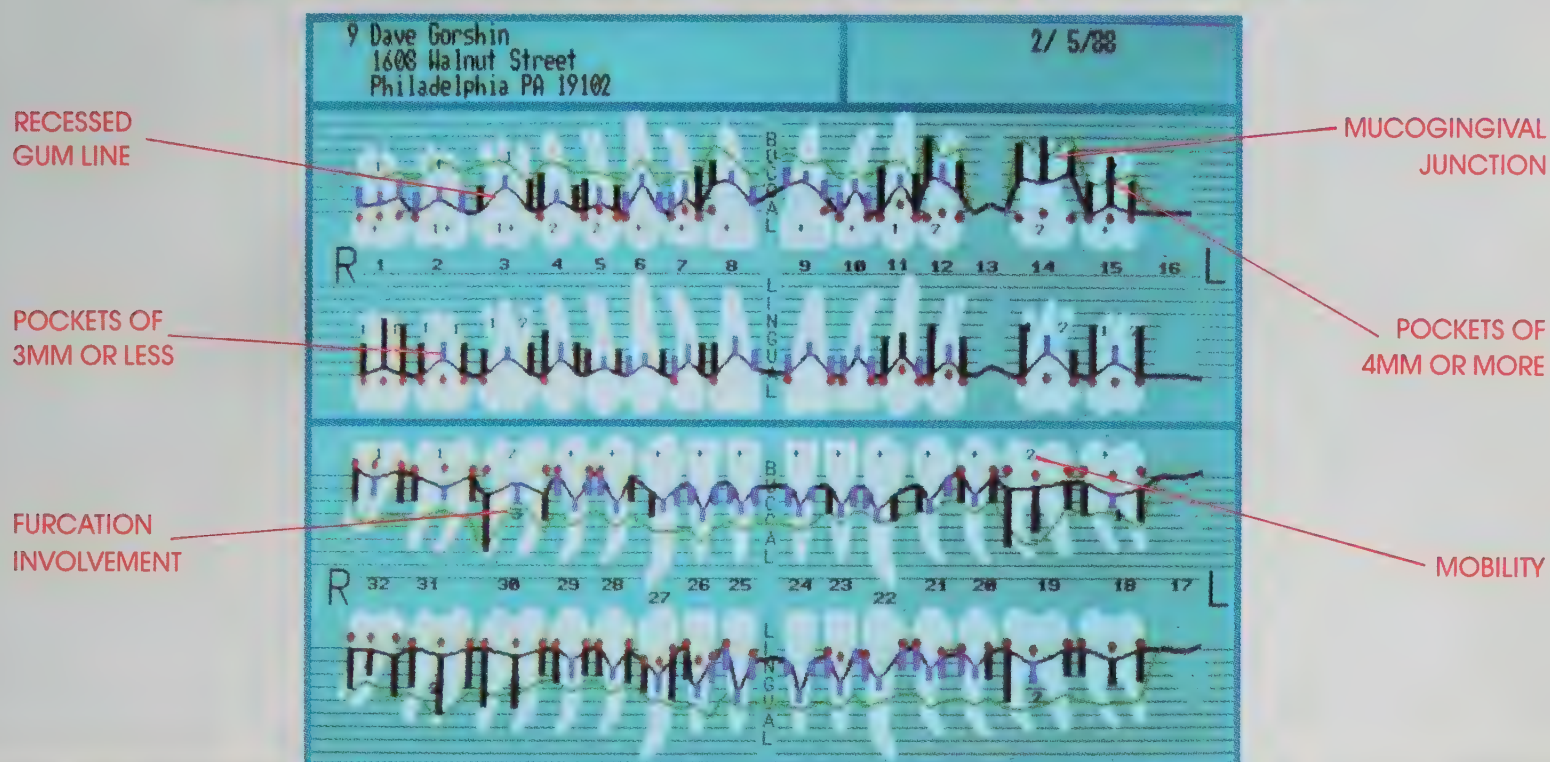
Innovation working for you™

3M | 
Worldwide Sponsor 1992 Olympic Games



A Revolution in Record Keeping

**With SIMPLESOFT CE,
You Can Document Patient Exams Quicker,
Easier and More Completely than Ever.**



There's nothing like **SIMPLESOFT CE** for producing comprehensive dental exam reports and graphics. For better patient care. For medico-legal records. For insurance claims. For patient education. With speed, ease and completeness never before possible.

Your Simplesoft system can store as many as 10,000 reports and examinations . . . can call up any report in about one second . . . can give you comparative reports and graphics so you can chart patient progress quickly at a glance . . . can prepare single or multiple reports.



Using voice activated technology, the operator corresponds directly with Simplesoft CE, reducing the number of persons needed to perform a routine periodontal examination. Simplesoft CE not only gives you more comprehensive documentation, it also helps you and your staff become more productive.

Photo Credit: Tara Sexton, DMD, Philadelphia, PA.

SIMPLESOFT CE produces both ultra-high-resolution color screen graphics and black and white printed copy. And it makes innovative use of voice-recognition technology for hands-free operation — eliminating typing and paper shuffling, and enabling the clinician to record data quickly without assistance.

**For more information,
contact your Ash Temple
representative.**

AVANTI ASSOCIATES

Simplesoft CE

The Complete Dental Examination

The Equity Grant for the advancement of Dentistry

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Designed to encourage and facilitate the development of clinical dentistry and continuing education in Canada, the Equity Grant will be funded by Ash Temple Limited.

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With dentures, excellence goes unnoticed. When we, as dental professionals, successfully create more natural-looking dentures, they are noticed less by the patient and people the patient comes into contact with. Yet, many dentures are noticed. Why? The teeth are perfectly white, smile lines are straight, buccal corridors are missing, the fit and function are less than optimal and there is a lack of consistency in the product received from the laboratory. The problem lies in two areas: understanding the components of a natural smile, and the lines of communication between laboratory and dentist.

A Natural Smile

Even the best-looking natural teeth are not perfect. They look real because of subtle characteristics and colour variations such as light blue distal lobes, vertical enamel cracks and dentin colour in the middle incisal one-third. Natural teeth also change throughout a person's life due to age and abrasion. Incisal edges become worn and tiny enamel cracks appear.

There are noticeable differences between feminine and masculine teeth. A man's teeth are generally larger with stronger, sharper angles and contours while female teeth are more softly curved with rounded features. The size and shape of natural teeth also varies from delicate to robust depending on a person's physical appearance. For example, a patient with bold, rugged features should have more angular, sharply contoured teeth.

Natural teeth form a gentle upward curve, parallel to the upper border of the lower lip, from the centrals back to the cuspids. This curve is called the "smile line". Setting up a denture without a smile line is perhaps the most serious, and most common artistic error in fabricating dentures, fixed crown, bridge cases, and implant prostheses.

Natural teeth are also imprecisely aligned. It is common to find spaces between teeth, incisal edges with irregularities, variations in tilt or rotation and adjacent teeth with embrasures. When these factors are ignored, the



Mr. H.J. Maier

result is similar to a wall of white in the patient's mouth. When a person smiles, part of the upper teeth show below the upper lip. The amount that shows depends on several factors including the patient's age and the structure of his/her face. As a person ages, less and less of the teeth are visible as muscles in the face lose tone and facial tissue drops (vertical cosmetic sag).

The process of smiling also unveils a space between the patient's cheeks and the buccal surfaces of the posterior teeth. This "buccal corridor" is a key criteria for creating a natural-looking smile. When dentures or implant overdentures are made without a buccal corridor, the



Fig. 1. The denture look



Fig. 2. The natural look

resulting smile is too "toothy" because the overall composition is too broad and unnatural. The first and second bicuspsids

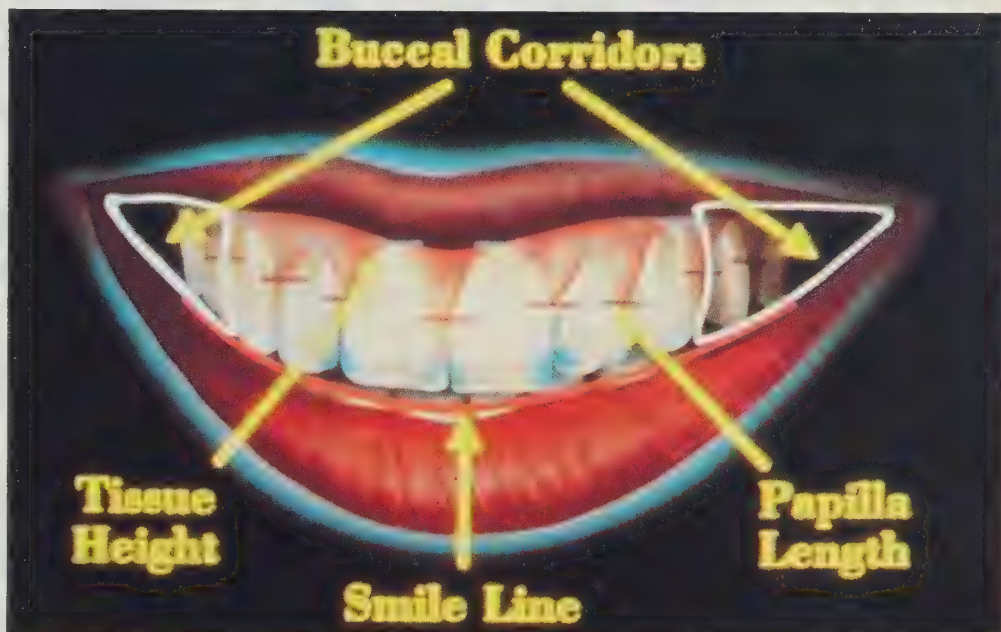


Fig. 3. Critical aesthetic considerations

and first molar are too prominent producing the "standard denture look".

The final factor, the tissue matrix around natural teeth, is perhaps the most misunderstood and ignored principle in fabricating dentures. Natural interdental papillae are convex in all directions. They also have different upward lengths that complement the upward curve of the smile line. This is compounded by the fact that, except for the central incisors, the tissue at the necks of the teeth is also at different heights with gingival tissue covering more of the tooth on the laterals than on the centrals.

If we understand all these factors that are required to make a natural smile, why are we so often disappointed in the final denture results. The problem lies in the difficulty in communicating the dentists' and patients' expectations to the laboratory. Dentist and laboratory often have vastly different ideas on what the ideal denture should look like. Now, with the *Swissedent Esthetic System* for creating natural dentures, a system does exist that allows for exact communication between dentist and laboratory — communication that provides a better and more natural-looking denture.

The Swissedent Esthetic System

With the *Swissedent Esthetic System*, the components of each natural smile are communicated to the laboratory. This allows the technician to design a denture that complements the patients' personality (ie. sex, facial features, age). The objective is to incorporate (especially in the anterior region), the subtle variations of natural dentition into each denture, partial or implant overdenture. As with most prosthetic techniques, the more information that can be exchanged between dentist and technician the better the result. The *Swissedent Esthetic System* is no different.

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ment. Unlike normal bite blocks, the ECB accurately portrays the technician's vision of the positioning of the teeth, lip support and length, labial inclination in profile, smile line and buccal corridors. Data are easily checked by the dentist and corrections can be communicated back to the technician.

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Mr. H.J. (Hyo) Maier, RDT, is President of Aurum Ceramic/Classic Dental Laboratories Ltd.



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Giving Science a Bad Name

By Derek W. Jones, Dalhousie University

I was prompted to write this article following the two days in December when I was called upon to respond to 22 requests from the media for interviews relating to the issue of mercury in dentistry. The philosophical questions — what is the role of the universities and university professor in society? — came to mind. Faculties of dentistry, as part of the university system, are the repositories of the knowledge base upon which the dental profession is built. As applied scientists, we have a responsibility to undertake research in order to enlarge the knowledge base and to provide an increased understanding of the subject in our chosen field. As dental scientists, we have a responsibility to understand and interpret the cutting edge of the various aspects of science for the dental profession as well as for the general public. The knowledge base which we draw on in order to teach our students has been developed over many years by careful search and research using the scientific method. For a subject to survive and advance as an applied science we have to continually question, review, and renew the knowledge base. William Whewell wrote in 1837, in *The History of Inductive Sciences*, "The advance of science consists in collecting general laws from particular facts and combining several laws into one higher generalization in which they still retain their former truth."

In general, it must be said that scientists tend to shy away from and neglect the often difficult task of explaining to the public in plain simple language complex scientific phenomena. In order to simplify a subject, we evidently have to run the risk of being unscientific. This was brought home to me very clearly in dealing with the mercury issue. I had, of course, given many interviews over the years on television, radio, and to the press, but never at such an intense and hectic level. We live in an era in which it is becoming much more difficult to keep up with the developments in one's own chosen field; we find it almost impossible to understand the complexities of the subjects being studied by our colleagues in other fields. To be instantly regarded overnight in the public eye as 'an expert'

in physiology, toxicology, microbiology, and dental materials places a very intense pressure on you when you respond to the media. Although we live in an ever-increasing technological and scientific world, the general population is perhaps now further away from understanding scientific phenomena than at any time in the history of modern civilization. It is often important that simple interpretations are made for the public of the scientific limitations of the research phenomenon. We live in an era in which the general population as well as governments are becoming increasingly concerned with the challenge to health posed by the environment. Some twenty years after the Clean Air Act in the US, 100 million Americans still breathe unhealthy air, acid rain continues to kill the rivers and lakes in the US and Canada. Polychlorinated biphenyls in our environment may cause cancers, liver disorders, skin rashes and possible birth defects. Chlorofluorocarbons are said to be destroying the ozone layer. The popular press regularly reports on the cancer risk posed by drinking tea and coffee or eating animal protein or fat, as well as by second-hand cigarette smoke or the drinking of alcohol. Against this background, the general population as well as governments are becoming increasingly concerned with the potential for toxic materials being placed in contact with tissues of the body.

We clearly have to recognize that journalists have to earn a living in a very competitive world, one in which the commercial media depends for its very existence on the ratings it receives. Advertising is down so they have to sell more newspapers, or gain more viewers or listeners for their programs. We could perhaps gain some satisfaction from the reports based on comments in scientific disciplines other than dentistry which suggest that it could well be the fault of the media combined with the appetite of the general public for sensationalism. For example, warnings have been put out by Dr. Bruce Ames (the Ames Test man), to the effect that man-made chemicals are less harmful than natural compounds. It seems that the field of toxicology attracts comments from individuals which feed

media sensationalism. As we have found, this is certainly true in the case of the use of mercury and fluoride in dentistry. The public would clearly be very alarmed and surprised to learn that out of the 65,725 chemicals which they may come into contact with on a daily basis, we only have complete health hazard assessments on about 1.65%. What is even more surprising is that for a staggering 70% of these chemicals, we have no toxicity information at all (Nelson, *Envir. Health. Perspec.* 75:97-103, 1987). To bring this information to the attention of the general public through the popular media would serve no useful purpose at all and would only result in widespread panic and worry for a segment of the population. The individuals who would perhaps suffer most from such sensationalism would be the elderly and sick. It is quite possible that some of these 65,725 chemicals are responsible in varying degrees for symptoms, allergies and obscure health problems exhibited by a small segment of the general population. However, this is an incredibly difficult problem facing scientists in the field of toxicology, one which requires a very sensible and responsible approach.

The recent television program (CBS' *60 Minutes*, December 16th, 1990) which had a segment dealing with dental amalgam was a typical example of media sensationalism. The clear message that "there is no documented scientific evidence showing adverse effects on health from mercury in dental amalgam restorations, except in very rare cases of mercury hypersensitivity" does not make exciting news for the media. The *60 Minutes* programme presented a very one-sided view in which only the two abstracts of research from Dr. Vimy and colleagues were highlighted, completely ignoring the published research from Sweden which had studied the effects of amalgam fillings on the health status of 1,000 and 1,200 patients. The conclusions from the Swedish study were completely opposite to the thrust of the arguments put forward by the CBS TV programme. The implication that it is possible for an individual to miraculously recover within 24 hours from a terminal illness such as MS by simply having their

amalgam restorations removed, is particularly damaging and can cause considerable disappointment for those who suffer from such diseases. The statement that we have no scientific evidence whatsoever to support such claims does not completely eradicate the seeds of doubt which have been planted in the minds of the impressionable. The rational argument that if mercury were the cause of the individuals' health problems, they would feel much worse rather than better, due to the higher release of mercury during the removal, should be sufficient to satisfy any skeptic. The further fact that the dental profession itself provides us with an excellent control group exposed to much higher levels of mercury than any single patient could receive from amalgam fillings is undoubtedly one of the strongest arguments against the media sensationalism. Pronouncements made directly to the media from Drs. Ames and Vimy and others serve only to confuse the public and, in the long run, tend to give science a bad name. The following extract is from a letter in *The Globe and Mail* (November 8th, 1990):

"Dr. Ames' alarmist and ill-founded statements may give solace to the pesticide industry. However, they are not supported by many scientists inside and outside prestigious research centres such as the U.S. National Cancer Institute. Dr. Ames' contradictions serve only to confuse the consumer and give science a bad name."

It is clear from this excerpt that the controversy in dentistry related to mercury and to fluoride is similar to the problems of toxins in food. The answer has to be well-controlled research programmes to address the areas of concern. The results from such research should be presented to peers at scientific meetings. Following this, the research findings should be published in a peer-reviewed scientific journal in sufficient detail so that other scientists may repeat the study in other institutions. The experiments need to be successfully confirmed by other investigators. Then, and only then, can a strong public education programme be put in place to correct the misinformation and anecdotal trivia which the media feeds upon. Science clearly has a responsibility to the public to keep them informed and to correct any errors of fact.

The more dramatic a scientific discovery, the more skeptical and disbelieving the scientific community. It is perhaps fortunate that science operates in this way. When test-tube fusion experiments

were reported, claiming to have achieved nuclear fusion by electrolysis of heavy water using a platinum anode and palladium cathode, scientists treated the claim with caution. No doubt thousands of experiments have been conducted around the world to see if the experiment could be repeated; to date none have been successful. There is a lesson in this for all of us who conduct scientific experiments: healthy skepticism is very good, and there is a very real need for verification of results produced by other researchers. It is clearly irresponsible for scientists to rush to the media with preliminary results.

Science should learn from the media episode involving "Cold Fusion." The simple conclusion is that science has to progress in a logical manner by peer review. This calls for a mature and responsible approach from the scientific community. Science is self-correcting, however; we must allow it to proceed in an appropriate manner. Vimy and Lorscheider 1985 (*J Dent Res* 64:1072-1075), reported values of mercury given off from dental amalgam fillings as 19.85 µg/day. Subsequent research by other investigators (Mackert 1978, *J Dent Res* 66:1775-1780; Olsson and Bergman 1988, Letter, *J Dent Res* 66:1288-1289), have shown these values to be significantly over-estimated. Mackert (1978) obtained values as low as 1.24 µg/day. This is indeed an example of the correct manner in which science should progress by peer review in the scientific, refereed literature, followed by replication by other researchers. To put these values of mercury into perspective, it has been estimated by Clarkson (1988) that the daily dietary mercury intake for humans is about 600 µg, of which 60 µg is retained. Furthermore, according to the an FDA document on mercury in seafood, an intake of 40 µg/kg body weight per day is considered safe; a value which is very significantly higher than the amount released from amalgam restorations. The words of Charles Darwin are perhaps worth noting: "False facts are highly injurious to the progress of science, for they often endure long; but false views, if supported by some evidence, do little harm, for everyone takes a salutary pleasure in proving their falseness; and when this is done, one path toward error is closed and the road to truth is often at the same time opened."

The experiments on sheep and monkeys conducted by Dr. Vimy and colleagues have come under considerable criticism from other scientists in various fields. Any experiment in which only one

subject (animal) is involved must be limited in its scope and will not allow any extensive conclusions to be drawn. The important factors to consider are the design of the experiment and the criteria which are used to conduct the various procedures. In experiments involving radio-labeled compounds, it is important to determine the total recovery of the labeled material. There is a question of whether sheep – ruminants – are an appropriate animal model. In addition, there is the potential for excessive loss of amalgam from the large surface of their molars in which the filling may not have been well supported by tooth enamel. As we know, sheep have very different chewing characteristics from humans. The claim that a study on six sheep which had received 12 amalgam restorations all at one time caused kidney dysfunction sounds very serious; however, the physiology of sheep is not the same as humans. An encouraging study by Naleway and Roxe (in press), has shown that there was no correlation between kidney dysfunction of dentists and the level of mercury exposure. However, the important point is that any full publication by Derek Jones or Murray Vimy in a refereed journal can be criticized and, hopefully, replicated by others. This is the manner in which science is self-correcting and how progress is made. The debate based upon laboratory and clinical data should be conducted in the scientific literature and not on public television, or in the popular press. Sufficient scientific detail must be provided in scientific publications to allow evaluation of the validity of any research by others.

Fisher (of statistics fame), made the point, as long ago as 1926, that a scientific fact should be regarded as experimentally established only if a properly designed experiment rarely fails to give a level of significance of at least 5%. Fisher also cautioned against being impressed by highly significant experimental results, since inaccurate methods of estimating error often have far more influence on the particular level of significance. Fisher also recognized three essential components required in order for good science to be conducted.

1. The need for proper study design, including adequate sample size and power.
2. The need to replicate a study as often as necessary to validate initial conclusions.
3. The need to select appropriate methods for estimating the error of the study.

An editorial in the *Journal of Laboratory*

and *Clinical Medicine* (May 1988) by Paul Jones made the point that "Statistical tests of significance address only one question: If a study were repeated, to what extent would we expect the results to be close to those originally reported? Only if the concept of statistical significance is retained can we answer the more pressing question: How do we design studies that will produce valid estimates of study error?"

Most of the 530 or so faculty members in the ten faculties of dentistry across Canada are applied scientists whether they realize it or not. But what is a scientist? The Dictionary of English Etymology (Oxford, 1966) cites *Sciencer*, *sciencist*, *scientman* and *scientiate*. Had any of these terms persisted, we may have had to invent science-person. All of these terms are now superseded by the term proposed by William Whewell, Master of Trinity College, Cambridge, who in 1840 wrote, "We very much need a name to describe a cultivator of science in general. I propose to call him (her) a scientist." Most of our university faculty members are "Scientists," some are engaged in "pure" science, but the majority are involved in applied science. The study of medicine, dentistry, biology, chemistry, physics, computing, geology, microbiology, oceanography, pathology, pharmacology, physiology, biophysics, involve the use of scientific reasoning. As applied scientists, we have a responsibility and trust placed in us by society. Let us hope that we can fulfil this trust. That trust implies that we search for the truth and strive to move the frontiers of knowledge forward. The fact that we are conducting research in our biomaterials laboratory at Dalhousie University into the development of restorative materials (none mercury), such as the synthesis of composite materials, ceramics and ion-leachable glass cements, does not mean that we believe that amalgam is a problem. We see the need to understand the nature and mechanisms of behaviour of various types of restorative materials and the need to improve the properties if at all possible.

Samuel Taylor Coleridge wrote in *Aids to Reflection* (1825), "Scientific reasoning is the faculty of concluding universal and necessary truths from particular and contingent appearances." The basic logical research methods used are the same whether we are attempting to understand the properties of biomaterials; or interpret rock formation from a specimen in a geology research laboratory; or the formation or breakdown of natural biological tissues; to evaluate animal and human behaviour,

or observe 'clinical' symptoms in order to determine possible cause or effect. We could do no better than to remember the words of Ruth Sager, (*American Scientist*, Vol. 76, 1988). "Science is a limitless challenge — it's always there, demanding, frustrating, sometimes satisfying. It's a way of living, a way of thinking. Research is the pursuit of the unknown but not unknowable. The challenge of research lies in devising questions that are answerable but unpredictable." In science, there are no simple answers. Will we be able to develop improved understanding and even better restorative materials in our Dalhousie Biomaterials Laboratory? Will we ever have complete health hazard assessments on the other 98% of the 65,725 chemicals mentioned by Nelson (1987)? Time will tell. The *60 minutes* programme raised a much broader issue than the use of amalgam as

a dental restorative material; it highlighted the need to ensure that science proceed in the accepted peer review manner. This is a lesson which should have been learned from cold fusion.

Finally, it should be noted that a recent report dealt with a controversial, but perhaps less serious, problem of mercury and teeth. A hypothesis has been put forward that the enigmatic smile of the Mona Lisa is an attempt to conceal teeth which have become blackened by mercury. It is suggested that she may have ingested mercury containing compounds in order to treat syphilis. However, no scientific data are available to support this claim. Further scientific data should clearly be put forward before blackening not only the teeth but the character and reputation of the anonymous lady who has captivated us with her smile for such a long time. Δ



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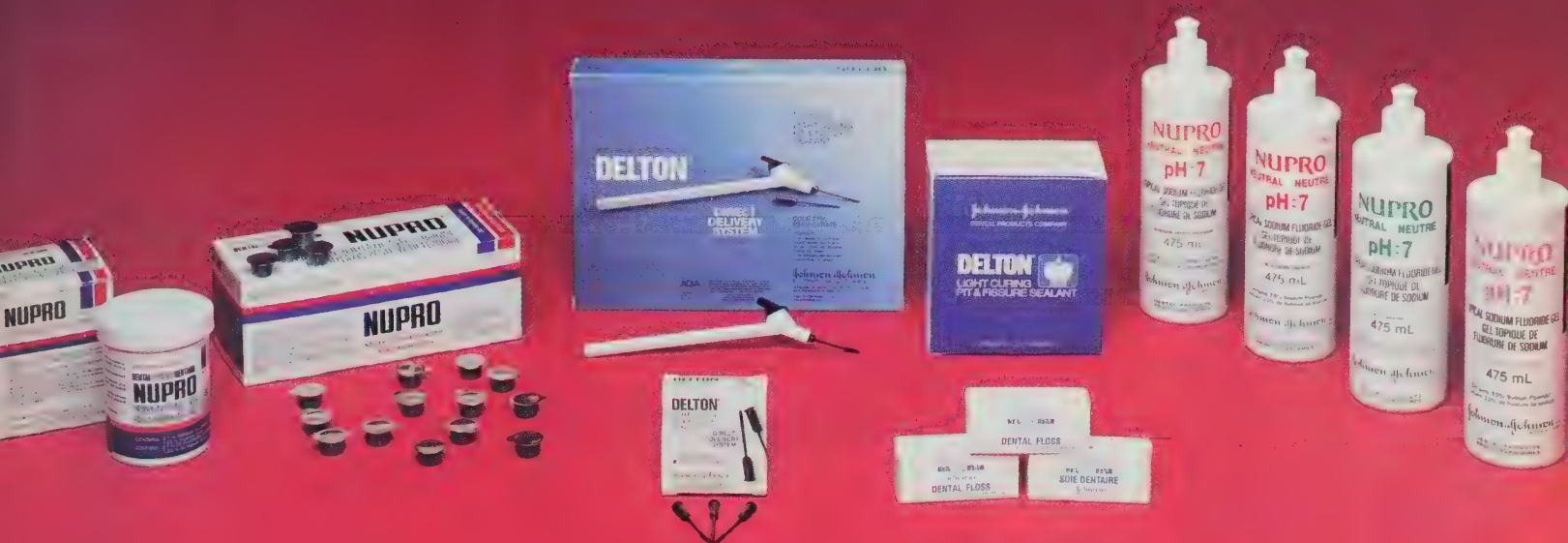
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Specialty Features

GST and the Dental Associate

By Marnie MacKay, CA

In the period leading up to the implementation of the GST, many conflicting rumours circulated concerning payments between associating dentists and how they would be treated with respect to the GST rules. As late as November 1990, at the Canadian Tax Foundation Conference in Montreal, the rules were being interpreted that GST would be payable on all payments between associating dentists, regardless of the structure of their relationship. This alarming suggestion was soon substantially mitigated when the Taxation Committee of the Canadian Dental Association issued its publication entitled *G.S.T. and Dentistry* in early December. Dr. Robert Hicks and the Taxation Committee of the CDA have done an excellent and thorough job of documenting the government's position regarding many specific aspects of dentistry and the GST ramifications. On the subject of associates' payments, a clear rule has been put forward which will cause most associating dentists to heave a sigh of relief.

By far the most frequent arrangement in a dental associateship is the situation in which the primary dentist, who owns the dental practice, bills all patients seen at that practice and reimburses the associate for a percentage of the fees charged to patients seen by the associate. The CDA has received assurances from Revenue Canada, Excise, that **no GST will apply to this situation.** (Scenario A, below, illustrates this common arrangement.) The practice, as a whole, is considered to be providing exempt services under the GST rules and the associate is considered to be one of the providers of this exempt service to the patient. The previous interpretation that the associate was providing a taxable service to the primary dentist, rather than an exempt service to the patient, was considered unreasonable since a hygienist's services are treated as exempt.

Practice within a Practice

The GST rules apply differently to an associate who is, in effect, running a practice within the practice location of the primary dentist. When an associate uses a colleague's facilities, but bills under his own name, collects his fees independently, and pays a percentage or flat



Marnie MacKay, CA

The Author

Marnie MacKay, CA, has a professional practice in Burlington, Ontario and deals primarily with health care professionals. (More than 50% of her clients are dental practitioners.) During the past fifteen years, she has held lectures on income tax for the Institute of Chartered Accountants, University of Western Ontario School of Dentistry, and McMaster University Medical School.

amount to the primary dentist, Revenue Canada, Excise considers that the primary dentist has provided a taxable service (the provision of space, equipment, supplies, and staff). Assuming that these payments from all sources total more than \$30,000 per year, the primary dentist must register and charge GST on this fee. The primary dentist may then recover a portion of the GST he pays to his landlord and suppliers. However, the associate dentist will effectively pay 7% GST on the salary component included in the overhead percentage. (See Scenario B, below.) An associate running a practice within a practice which has matured to a predictable level of monthly billings, and who is paying 60% of his gross to the primary dentist for use of staff and facilities may wish to restructure his arrangements to minimize his GST cost. Because it is

likely that a substantial portion of this 60% is for salaries, an expense sharing arrangement could substantially lower the associate's GST cost.

Expense Sharing

An expense sharing arrangement occurs when two or more dentists agree to jointly pay for space, staff, supplies, and other services in an agreed percentage of overall expenses. This could be either a full expense sharing arrangement or a modified expense sharing arrangement where only certain expenses are shared. In a full expense sharing arrangement, each dentist is responsible for a specific portion of all defined joint assets and expenses. This may involve jointly purchasing new assets, or a new dentist purchasing a percentage of assets from the primary dentist in order to become an expense sharing partner. In this situation, there are two possible ways of paying the expenses: either through a joint account, with each expense sharing partner depositing money proportionally to pay the bills, or each dentist could write a separate cheque for his proportionate share of each expense. In either of these cases, GST would be paid proportionally to each dentist on each expense as it is paid. No GST would be payable on salaries. This situation works well when both practices have matured to a stage where revenues can be predicated and if both dentists are willing to share the risks, responsibilities, and rewards of management and ownership.

Modified Expense Sharing

An associate building a new practice within a practice may not be able to afford an equal share of overhead. A primary dentist may be unwilling to relinquish control of ownership and management until the associate has established a substantial practice and the compatibility of the two dentists' business and professional styles has been confirmed. A compromise may be possible whereby the associate hires one or more staff members directly and pays a lower percentage overhead to the primary dentist for space and supplies. The associate would pay GST only on the amount paid to the primary dentist for expenses other than salaries (Scenario C). The amount of GST

on this lower amount would be comparable to the amount of GST paid by the primary dentist on rent, supplies, etc. In arriving at a fair allocation, it might be useful to jointly hire a receptionist or other staff member with each dentist alternately issuing the pay cheque.

To illustrate the various approaches, assume the following facts:

Gross Billings (Net of Laboratory Fees):			
Primary Dentist	\$300,000		
Associate Dentist	100,000		
Total Gross Billings	\$400,000	100%	
Practice Overhead			
Salaries	\$100,000	25%	
Remaining Overhead (Space, Supplies, etc.)	140,000	35%	
	\$240,000	60%	

SCENARIO C

Modified Expense Sharing: Associate Hires Assistant and Pays 20% Overhead to Primary Dentist

	ASSOCIATE	PRIMARY DENTIST
Billings	\$ 100,000	\$ 300,000
Salaries	(30,000)	(70,000)
Remaining Overhead (before GST)		(131,000)
GST On Overhead Items		(9,000)
Payment to Primary Dentist	(30,000)	30,000
GST: (Paid)/Recovered	(2,100)	4,500
Net Amount Retained	\$ 37,900	\$ 124,500

In **Scenario C**, the associate does not have sufficient practice volume to warrant full expense sharing. If the dentists wish to keep their practices separate, both are ahead to use a modified expense sharing arrangement. The primary dentist will have the additional headache of having to track and recover GST but will be

rewarded with a recovery. Once registered, the primary dentist will be required to charge GST on all taxable activities he undertakes as an individual, including cosmetic dentistry, medical-legal, consulting and any miscellaneous rental or part-time business income.

There are pros and cons to each approach. The exact circumstances and financial implications will have to be reviewed in each case to determine the optimum solution. Simplicity will have a financial cost to one or both parties. However, given the complexity needed to track GST paid and charged and the extra bookkeeping costs to maintain a more complex system, the real cost of simplicity may not be as high as one might initially think. Careful analysis of all the factors, financial and non-financial, must be done before concluding which system is best. Δ

SCENARIO A

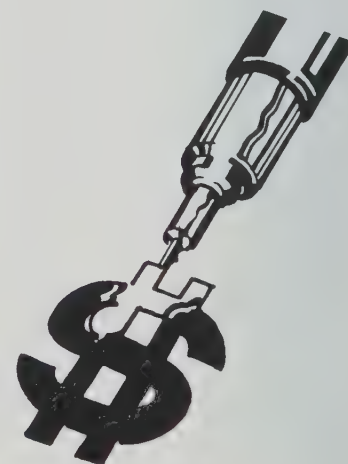
Primary Dentist bills all patients and pays 40% to Associate

	ASSOCIATE	PRIMARY DENTIST
Billings		\$ 400,000
Salaries		(100,000)
Remaining Overhead		(140,000)
Payment to Associate	40,000	(40,000)
GST Paid (Recovered)	0	Included in Overhead
Net Amount Retained	\$ 40,000	\$ 120,000

SCENARIO B

Associate Bills Own Patients and Pays 60% to Primary Dentist

	ASSOCIATE	PRIMARY DENTIST
Billings	\$ 100,000	\$ 300,000
Salaries		(100,000)
Remaining Overhead (before GST)		(131,000)
GST On Overhead Items		(9,000)
Payment to Primary Dentist	(60,000)	60,000
GST: (Paid)/Recovered	(4,200)	4,500
Net Amount Retained	\$ 35,800	\$ 124,500



Specialty Features

PREPARE YOURSELF! *Reaching your goals is only half the battle Give yourself the "winning edge"*

R.S. Unger, PhD, C Psych

The concept of *psychological preparedness* is not new, although it seems to have been forgotten as one of the more important psycho-social processes. In taking patients' psychological histories, I always try to identify the individual's level of adaptability and psychological preparedness for later life. I also try to determine those areas in which (s)he, for one reason or another, was left with fewer psychological resources than other individuals — resources from which one draws upon when, and if, the need arises. I also look for those areas in which (s)he has strong psychological preparedness.

Some professionals call it "pre-disposition". The how, what, when, or why each of us falls or trips into emotional distress can often be determined by a detailed examination of certain psychologically important experiences early in our lives.

Consider this: How many of us have wished to win \$10 million in the Lotto 6/49? I would think the vast majority. We enjoy our daydreams of paying off the mortgage, taking that extended holiday, providing financial security for our parents and children and enjoying the good life. But whether each of us has the necessary psychological preparedness to withstand the rigours and responsibilities of such a situation is another question entirely. While initially very gratifying, the pressures of winning such a large sum of money with the consequent telephone calls, the media, requests from organizations for donations, as well as potential kidnapping of family members for ransom can sometimes cause friendly, considerate, conscientious winners to become socially-isolated, paranoid, depressed and even suicidal. I have seen it happen. The absence of such preparedness will almost invariably result in situations like the Lotto 6/49 winner overwhelmed by the pressures, turning to alcohol, drugs or suicide; or the malcontent, successful dentist falling victim to a broad array of psychological conflict, emotional upheaval and confidence destruction.



Dr. R.S. Unger

In other articles and presentations, I have discussed dentists' acquisition of clinical skills. Throughout their academic career, their newly-attained chairside and laboratory skills are closely monitored. At the end of the scholarly path, certain examinations are passed and acceptance by the Licensing authorities is given. In many respects, what happens next in the new dentist's life is like another person winning the Lotto 6/49. In certain individuals, mere recognition of the tremendous amount of responsibility is oppressive; in others, the attainment of a life-long goal or dream is exhilarating. In still others, "keeping track of everything" becomes obsessive. For others, the emotional aspect of "the conquest" is perceived to be addictive and cannot be moderated.

How can we prepare ourselves for such unexpected events? We cannot predict when such events may occur, nor to whom. When we are able to define our goals, we are ultimately faced with the realization that the "perfect" lawn, for example, does not just happen without certain necessary efforts (seasonal fertilization, fungicide, watering, etc). If we wish to achieve a certain goal, we must be willing to provide the preparations necessary to ensure the goal. The same

is true for becoming a dentist: good high school grades, dental schooling, successful examinations.

But what about the psychological preparedness necessary to ensure positive psychological responses to, and even from, the attainment of such goals? Historically, few professional schools have provided courses, seminars or experiential activities, although they are strengthening this area of the curriculum. These areas are now accepted as very important in the preparation of skilled professional dentists.

I think the reason that some Lotto 6/49 winners fall victim to anxiety, depression and despair might also apply to those dentists who succumb to the same conditions after achieving their goal of becoming dentists. I think the answer lies primarily in the psychological make-up of the individual and, to a lesser extent, the situation. Individuals who are not psychologically prepared for those changes in their life are at greater risk for psychological deterioration as a result of such changes. The depth and duration of the deterioration, as well as the rehabilitative strategies have general common characteristics, but are individual pathologies when examined in detail.

Many sport teams, management companies and other organizations have come to recognize the importance of psychological preparedness and include psychologists on the coaching/management teams. There is a growing awareness that not only are physical or clinical skills important in performance, but that most often, being psychologically prepared can provide the "winning edge".

But who suffers from what has been called "burnout"? Freudenberger, considered to be a leading scholar on the subject, stated simply "the dedicated and the committed" (*Journal of Social Issues*, Vol. 30, #1, 1974). About two thirds of my clinical caseload consists of members of various professional groups (accountants, dentists, lawyers, nurses, stock-brokers). Invariably, after a few sessions, they have grown comfortable with the

experience of psychotherapy and think aloud some of their concerns: "Why me? I have always done well in school, have a great wife/husband and kids, all my friends *think* I've got it made . . . if they only knew about my torment . . . what went wrong?" By the time these individuals have decided to attend psychotherapy, they have virtually exhausted themselves trying to solve what they perceive as their problem. They become enmeshed in trying to identify a tangible source for their conflict, rather than focus upon those areas in which their psychological preparedness was not sufficient to sustain them through the situation.

These people are not obtuse; they simply have never had the opportunity or need to explore certain areas of their psyche. Once understood, this knowledge, in and of itself, may not provide very much relief. In fact, sometimes the "inner journey" as it is sometimes called, may be somewhat emotionally painful as well. But the acknowledgement of one's strengths and weaknesses provides for several alternatives and opportunities for change and resolution of the on-going conflict. I usually provide a dual approach. On the one hand, very practical do-it-yourself sorts of things that are designed to prevent further erosion of psychological health. On the other hand, a more detailed and restrained psychological examination of the particular life-experiences that may have resulted in a deficit of psychological preparedness for certain on-going situations. Of course, it is highly probable, and indeed very likely, that we might all be deficient in certain areas of our lives while being virtually perfect in others. It is this major psychological imbalance called burnout that occurs in "committed and dedicated" professionals.

In my formal presentations and other papers, I discuss the sequence of brown-out, burn-out, and lights-out. Any of the traditional therapies are useful in assisting the individual to identify and resolve the on-going conflict(s). Personally, I tend to use insight-oriented, cognitive-behavioural and analytic strategies. These are not "quick-fix" solutions but are more temperate methods of achieving psychological homeostasis stability as well as increased psychological preparedness for future situations in which the individual may be at risk of deterioration.

Do It Yourself

While the traditional psychotherapy follows a somewhat slower pace, certain other strategies might be formulated and

implemented to deal with the quicker pace of day-to-day stresses in the world of patients, staff, family and equipment. These may provide fairly rapid positive results. However, if symptoms of burnout persist or return, there is strong possibility that such practical solutions alone will not resolve what most probably is an intra-psychic conflict resulting in the symptoms of burnout. I know that this all sounds pretty horrible, but now you have an idea of what a non-dentist goes through when looking at clinical pictures of teeth with the lip-retractor in place. In colour, no less!

I Enjoy! Enjoy! Enjoy!

It is a widely held belief that human beings cannot really think about two distinct things at the same time. Even when we think that we are doing it, we are really just rapidly changing from one topic to another and back again. In other words, when a person is intently engrossed in activity A, (s)he would be hard pressed to be aware of activity B. Not convinced? Try to think of a green striped baby elephant looking for its mother among a herd of red and blue adult polar bears *while* you read the next sentence.

The converse of this is also true: if you wish to divert your attention from a certain activity ("worrying about the practice"), then you must attempt to engross yourself in another activity. This is exactly what coaches and psychologists try to do to erase incorrect behaviour in certain sports. Instead of telling a novice skier "don't stand up too tall" (which brings attention to the entire body), a better coaching strategy is to suggest "try to keep your knees bent", which automatically prevents any possibility of standing too upright.

In order to get some respite from the worry of the practice, get involved in strenuous physical activity, such as tennis, skiing, workouts, etc. By directing the primary focus of your thoughts to the technical skills required to perform it correctly, you will be *unable* to worry about the practice, or anything else for that matter. This is why so many people report that they feel relaxed after engaging in a rigorous game of racquetball, a day of skiing or similar activities. During these activities, they stopped worrying about anything else that was not directly related to the activity at hand. In addition, the production of endorphins, natural anti-depressants, also help.

II Make To-Do Lists

I am a great believer in making lists. My

own Action List consists of the following headings: calls to make, places to go, bills to pay, people to see, ideas, telephone calls to make, letters to write, follow-ups. I've arranged them in little boxes and make up as many as I need. More professional versions are available in the marketplace, but these work just as well. As long as I review my list two or three times a day and stroke out those things completed, I seem to have a lot more "free space" in my mind. I am always impressed by how often anxious and/or depressed patients keep things alive in their mind, almost as if they are preoccupied with certain things without the need for resolution. I usually suggest that they write these things down and then get on with other things. Their thoughts, obviously very important to them, are not "lost"; they are merely "on hold". An example? If you tend to worry all day about the 9:30 am endo on Mrs. Smith, why not write it down on your list to telephone her at 5:00 pm to see how she is? And then go on to other things.

Please notice that I did not suggest *forgetting* about Mrs. Smith's endo, as this will psychologically cause you to worry about it even more. Also, if you begin to start keeping lists, it is imperative that you check them fairly frequently, perhaps three or four times a day.

III Remember Your Other Relationships

Don't forget that you were someone *before* becoming a dentist. You may be a brother, sister, son, daughter, husband, wife, father, mother, friend *while* being a dentist. You are also a neighbour, consumer and colleague. Try to remember that you are involved in all of these relationships and that you are probably just as important to these people, in a different way, as you are to your patients. Having a balanced, psychologically healthy life means having a variety of satisfying relationships to stabilize the sometimes rocky road of life. If you find yourself in the midst of burnout, attempt to get "back in touch" with old friends, and further enhance the more immediate relationships. Remember that these people are not your enemies, and were there for you when you needed them before. Good friends are a very valuable asset. Do things with people, go for a dinner, to a baseball game, to the zoo. Spend an afternoon with the children. You will soon develop a different sense of the importance of things in life. This may all sound rather paradoxical, but it does work.

IV Maintain your Physical Health

Sometimes we forget that, in the midst of emotional upheaval, our physical needs must be maintained or else the situation deteriorates even further. Try to maintain a healthy, balanced diet, even though you might not feel hungry. Eat! Seven or eight hours of sleep is important as well. Long, hot showers or baths while listening to your favourite music may assist in relaxing you a bit. Avoid alcohol! Avoid smoking! Take long walks!

In conclusion, I would like to repeat two points. First, there are things that you can do *right now* to combat the symptoms of burnout. While these might provide for complete resolution, persistent and intense symptoms should be considered an indication of a more serious depression and more traditional psychotherapy might be indicated.

Second, as with any other impediment to homeostasis, the best treatment course is early diagnosis, quality treatment and consistent follow-up. Every province has resources available to assist any dentist encountering burnout. Several have very sophisticated confidential help-lines staffed by specially trained colleagues willing to assist if and when a dentist or a member of the family makes contact.

I have been fortunate to be associated with the Dentist-At-Risk program in Ontario. I know that the dedication and skills demonstrated by your colleague-volunteers are of exceptional quality and I have no doubt that other programs are equal in their willingness to provide support.

I hope that you might never require the assistance of the various dental help-line programs, but if you, your staff, or your family ever feel the need, if you feel that your coping skills are beginning to fail you, or you fear for your stability, please contact your local Society, a colleague, a friend, or any office of the Canadian Dental Association for the telephone number of a helping colleague. You may not be as "all alone" as you think. Δ

Dr. R.S. Unger, a Clinical Psychologist, maintains private practices in London and Toronto, specializing in the treatment of burnout and stress-related disorders. He may be reached directly, through Ontario's DAR program or through the CDA.

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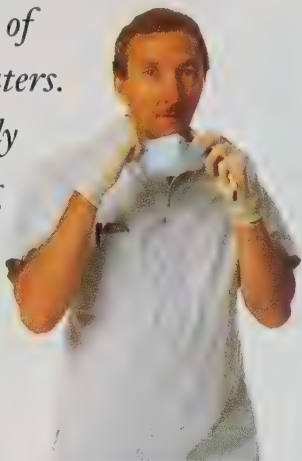
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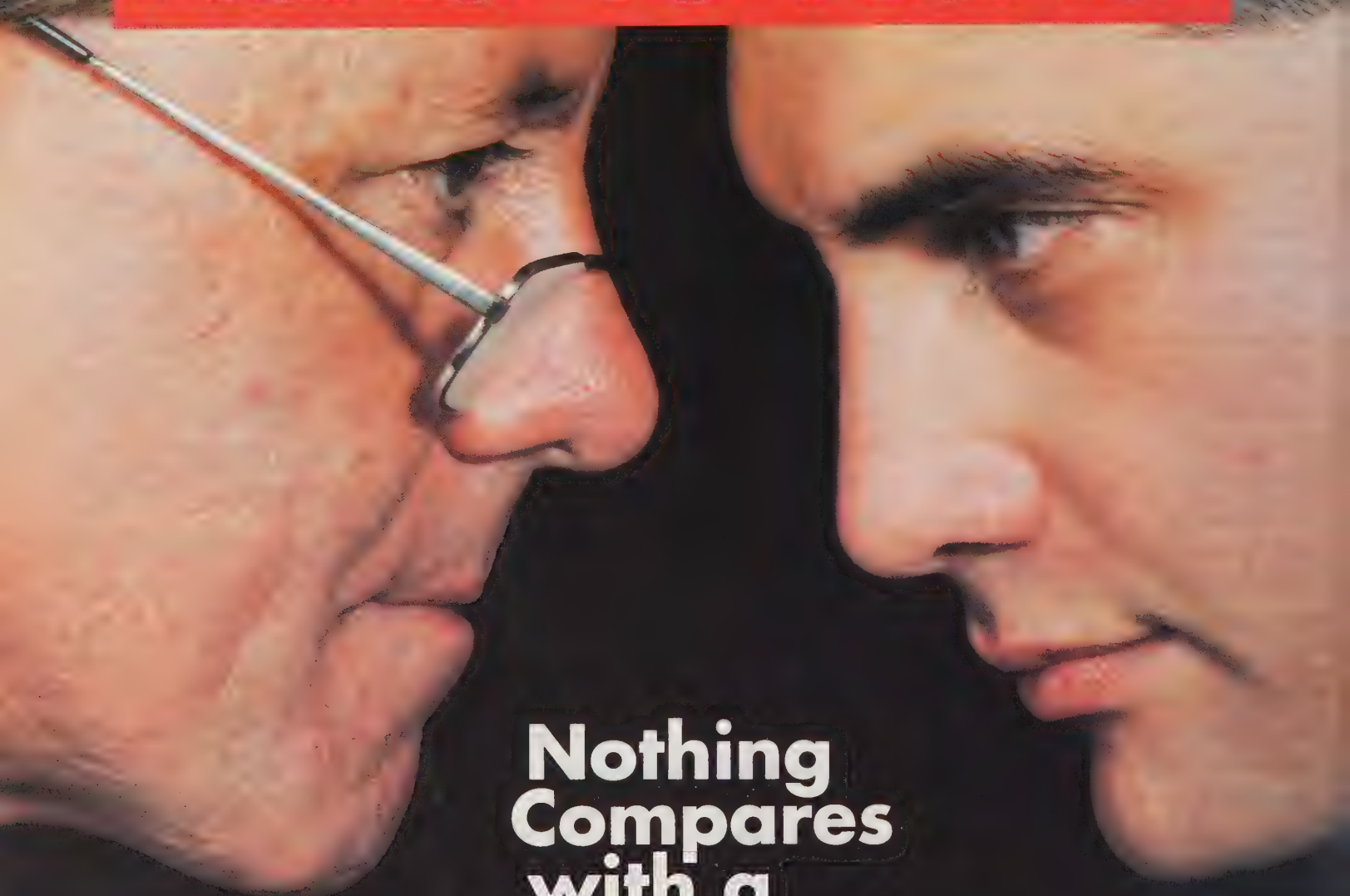
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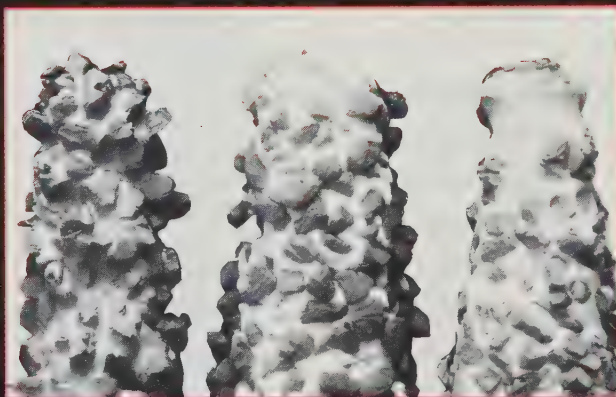
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Preparing Your Practice for Retirement

Robert A. Brandon, DDS

No dentist, or any other professional, should contemplate retirement without years of advance planning. RRSPs, spousal plans, investment strategies, annuity plans and cash flow projections, all require careful analysis. Relocation, mode of living (condo etc.), and post-retirement activities should be carefully calculated. Without doubt, the sale of a dentist's practice is a major consideration in any retirement plan.

Unfortunately, the transition to carefree retirement is often marred by inadequate planning and the price received for one's dental practice is often less than anticipated. Many retiring dentists estimate that six, nine or twelve months gross revenue will automatically be realized in a sale. Dentists will also assume that their practices will sell quickly and easily to an eager buyer.

Unfortunately, without solid planning and positive action, particularly after years of dedicated service to regular patients, the transfer of assets and responsibility is not always satisfactory to all participants — seller, purchaser and patient.

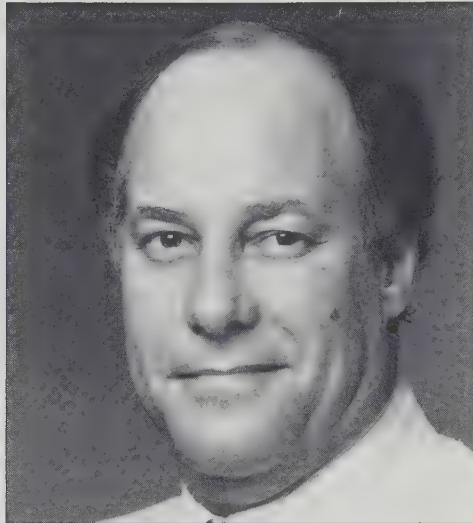
What follows, in a general fashion, are suggestions on how attention to three major areas — management systems, leasehold improvements and equipment — may ease concern and maximize return.

Management Systems

An effective management system is an important element in the assessment of the selling value of your practice. An orderly, systematized practice will add greater appeal to your practice in the eyes of prospective buyers. Computerization, especially in today's world, facilitates efficient management-by-objectives systems, but even without computerization, these systems must be well-organized. Systems such as:

1. 'one-rite' accounting
2. 'one-rite' payroll
3. 'one-rite' accounts payable

Multi-entry of the above is not only labour-intensive, but subject to error. More importantly, multi-entry modes often obscure facts and figures for prospective buyers who are interested in return on investment figures. If the ven-



Dr. Robert Brandon

dor initially hopes to attract an associate, it is important to provide a separate 'one write' accounting system for the associate/future purchaser.

Annual Financial Plan (Budget)

This system should include projected (pro forma) income and expenses under the various categories. Monthly reports should be generated showing comparison of actual results in both revenue and expenses as compared to the forecast for the month and year-to-date. The use of this system will allow the dentist/manager to quickly identify and act on emerging adverse trends.

Accounts Receivable (AR) Management System

This system should include a monthly AR spread for overdue accounts broken down into 30, 60, 90 and in excess of 120 days. The mechanism of financial arrangements and the follow-up activity on overdue accounts should be demonstrable. For example, collection activity and financial arrangements made and agreed to should be reflected on the ledger card. This allows the dentist/manager to easily monitor staff collection activity of the accounts receivable. As a general rule, an accounts receivable level, not greater than one month's gross and

a write-off level not exceeding 1% of annual gross, would be an acceptable upper limit.

Customary Fee Level

The vendor must remember that a purchaser will, in addition to the ongoing office overhead, have a substantial debt service expense based on the practice purchase price. The usual and customary fee level of the practice combined with sufficient patient flow must provide a reasonable return on investment. It is extremely important for a purchaser to increase the level of fees sufficiently to accomplish this, without patient loss, *if the existing fee level is inordinately low*. The prudent future vendor, in anticipation of practice sale, will gradually (over three to five years), increase the fee level to the average for his/her area. These results, of course, will also be reflected in the last three years' gross income of the practice prior to the transition and will directly affect the sale price.

Inventory Control System

In a well managed practice, 5% to a maximum of 8% of practice gross income is spent on dental supplies. An inventory control system is an area that demands attention. Included should be: minimum point ordering of any one item, best source and most favourable volume price considering shelf life. The result of adequate attention to this area will be immediately identified in the monthly budget figures.

Staffing System

This system will include role/job descriptions and performance appraisals that show staff input. Under employment legislation, the purchaser will assume legal liability with regard to severance pay etc., of employees retained over the transition. The quality and length of tenure of staff will also be reflected in the practice sale price and ease of transition.

Filing and Charting Systems

These are important from a medico-legal standpoint and a practice manage-

ment standpoint. It would be prudent to critically examine the nature of the chart, odontogram, informed consent and medical history forms etc. from the viewpoint of a recent graduate from an educational system which prioritizes these items. Redesigning charts and changeover is best done five years or so in advance of attracting a purchaser/associate. A colour-coded tab indexed system to avoid lost/misfiled charts is desirable.

Recall Systems

Purchasers know that a recall system is the heart of a practice. They will be looking for one that is office-initiated (i.e., the patient is contacted or pre-booked for recall by the office). A recall system that is kept updated and the effectiveness of staff in recall management will form a large part of the potential purchaser's decision. (See *CDA Journal*, April 1990, for an in-depth discussion of this topic.) Of critical interest to the purchaser is the date of the patient's last visit. Most purchasers will not consider a patient to be active (and therefore an asset to the goodwill value), unless he/she has been seen for recall within the last 12-15 months.

Marketing System

A potential purchaser/associate will be vitally interested in whether the practice will keep them busy. The existence of an established *internal* marketing system consisting of such items as 'welcome to the practice' letters/brochures, referral acknowledgements, and post treatment communication will assist the purchaser/associate in their decision. A 'new patient' monitor is easily established and of great value.

Office Manual System

An established and refined office manual should be as inclusive as possible. Chapters pertaining to the mechanics of the previously discussed systems should be included in the manual. Ideally, the manual can be used as a training tool for new employees. This system also assists in attracting high calibre new employees who are much in demand. The office manual will allay the fears of a recent graduate or a practitioner who has never managed his/her own practice.

A misconception often exists among dentists (especially new graduates), that management is beyond their level of knowledge and thus they may rule out a practice purchase if the previously mentioned systems are not in place. A posi-

tive decision to purchase is much more likely (at an appropriate price), if the prospective purchaser views the practice as a 'turnkey' operation. Prototype office manuals are available from publishers of dental texts.

Goodwill is usually the largest single component of the purchase price of a practice. It is *not* an arbitrary amount, but rather is based upon, among other things, the existence and effectiveness of the previously mentioned systems. Is it worth the trouble to establish such systems in an older practice within five years of the owner's retirement? A resounding yes! Not only will it significantly add to the goodwill value at the sale time, but it will also increase the office net profitability during the owner's final years of practice and, in the experience of the author, often re-energizes the practitioner and staff. Change is often resisted, but, just as often, the results justify taking the plunge.

All of the above systems can be facilitated greatly by computerization *but* they should be in place and functioning well on a manual basis to ease the computerization transition. The transition to computerization is definitely not mandatory for the retiring dentist. Once established, monitoring of the manual systems will only require approximately six hours of management time per month. The return on that time investment will be extremely attractive.

The final two areas affecting practice value that require attention three to five years in advance of retirement are: leasehold improvements and equipment.

Leasehold Improvements

Values for office decoration, patient flow, plumbing, electrical etc., can range from \$50-\$85 per sq. ft. depending on the practice location. To justify this value, the lease should be of reasonable duration with a solid renewal option and be assumable or transferable. It is unreasonable for the vendor to start moving walls, etc. Evaluating the decor of the office, cabinet facings, lighting, ceiling height, draperies, office signs and the like are vital in the pre-sale/pre-associate situation.

It is somewhat like putting a loaf of bread in the oven just before a potential purchaser comes to view a residential property. Many practice owners have inadvertently turned off purchasers, increased sale difficulties, and realized substantially lower prices by failing to attend to these relatively inexpensive areas of concern.

Equipment

The retiring dentist should understand that a recent graduate has been exposed to relatively new equipment. The thought of having to immediately add to, or replace, existing equipment is often overwhelming to the purchaser, especially in the face of practice price uncertainty, added debt load and the added management responsibilities inherent in the purchase decision. By eliminating this stressor, the vendor may ease purchase transition and in fact, increase the net profit of the sale. The vendor may consider adding a used auto processor to replace a manual system, adding Hek conversion units to old chairs, recovering older but modern chairs, adding a used composite curing light, replacing very old X-ray units with used 70 Kv units etc. Relatively small investments of this nature will pay off with a good return. Funds used in this manner and with leasehold improvements will be more than recovered in the sale price.

Both these areas have much the same effect as replacing old worn out tires and waxing and painting an older but quite functional car prior to sale. It creates a much more favourable initial impression and reduces the purchaser's fear of immediate after-sale expense.

In summary, pre-retirement attention to refinement and/or establishment of some important systems and a modest investment in leasehold improvements and equipment are important concerns in preparing a practice for retirement.

If this article has assisted any retiring dentist with a practice transition, the author will have fulfilled his objective. A future article will address the issue of associateship/buy-in or buy-out situations and actual practice transitions. Δ

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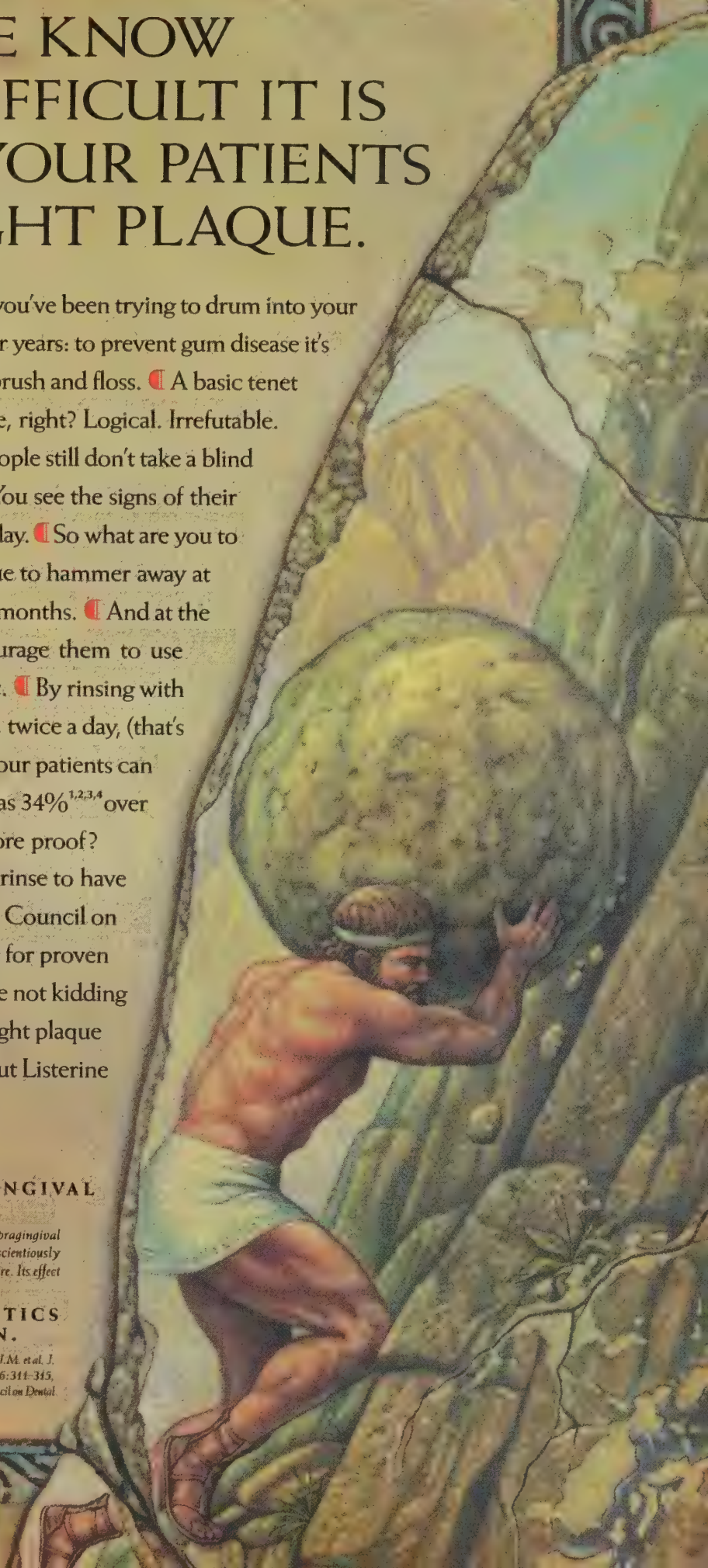
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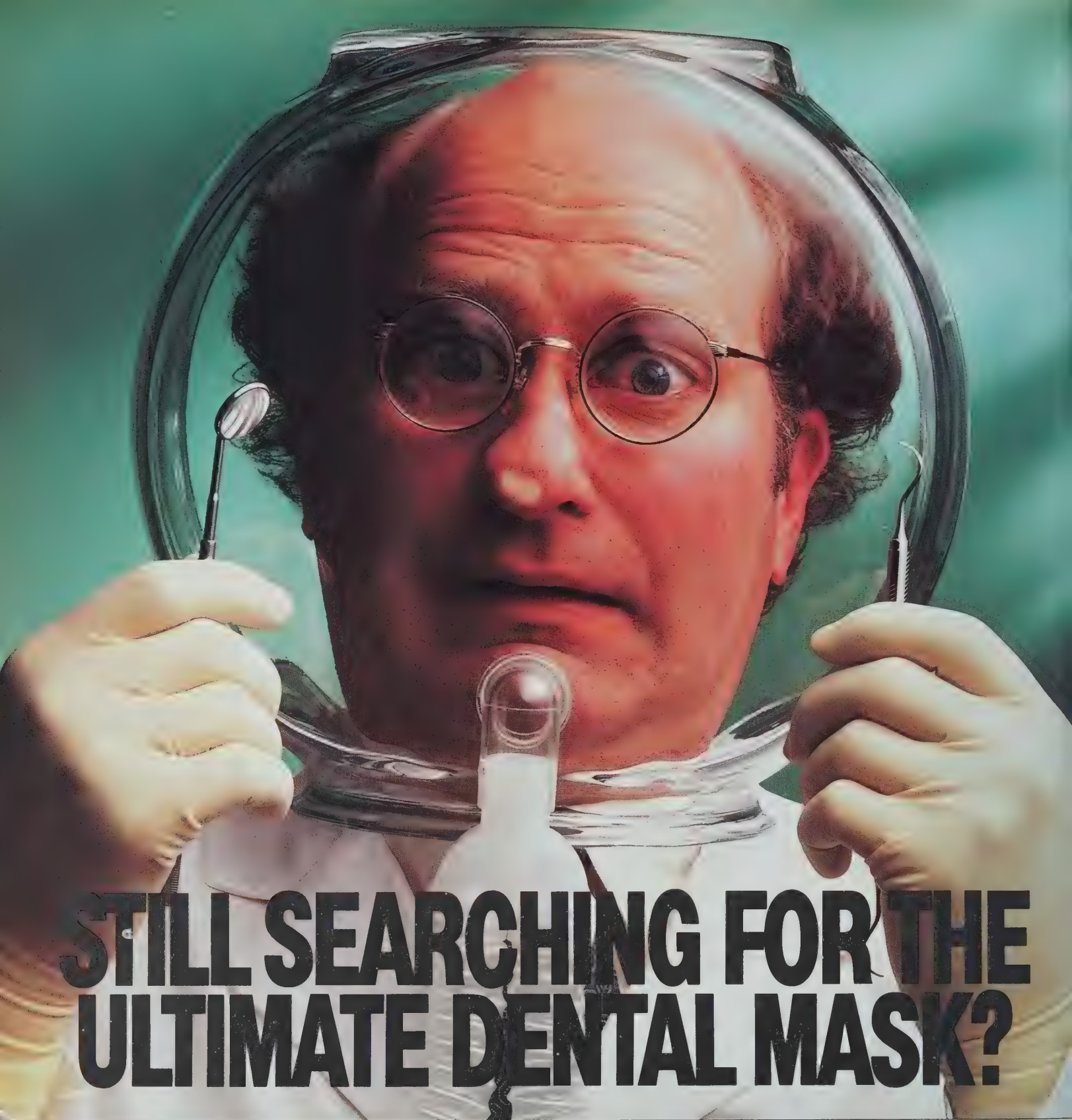


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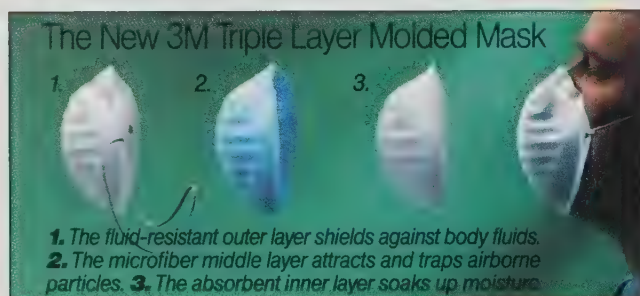
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Heading Off A Termination

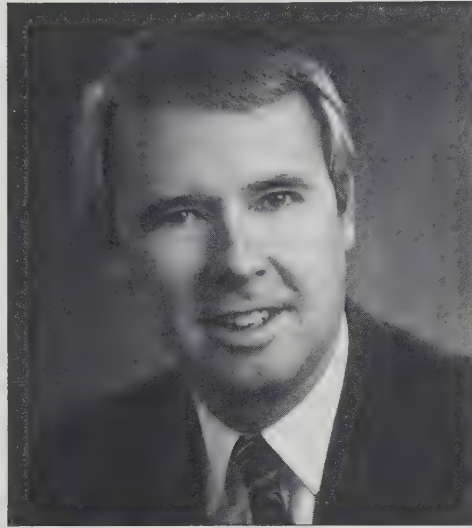
Bob Totten

Over the past several years, much has been said and written about how to handle the termination of employees. By now, most organizations are familiar with the high cost of termination — not only in terms of settlement, but also in terms of the suffering endured by those who are terminated and those who have to carry out the act. However, there are positive signs that we are finding ways to avoid outright termination and are seeking better solutions for everyone.

Reasons for termination are fairly consistent: 60% of all terminations are the result of the incumbent being poorly suited to the job at hand; another 20% of terminations result from inadequate performance; the remaining 20% can be attributed to job redundancy and business closures. While the problem of job redundancy and business closures often cannot be avoided, 80% of reasons for termination can, in many cases, be avoided with careful planning.

To avoid possible future terminations, it is necessary to start at the beginning of the employment process. A large percentage of employers' dissatisfaction with employees can be traced directly to the recruitment methods used at the time the employee was hired. In many cases the employer (pressed for time and desperate to fill a position), carried out a quick search for staff which yielded few good applicants and resulted in the hiring of a second-best candidate. To overcome this problem, more time should be spent in the search and recruitment process, as well as research on prospective candidates. It is not unusual, for example, for a period of three to six months to elapse before some middle management and senior level positions are filled. While it may be a frustrating experience for the organization to operate without a key position filled, the dividends pay off in the long run with longer term employees who are not only happier in their work, but who are also more productive. At the very least, employers should take the time to assess candidates through a number of recruitment methods, test their abilities and, above all, thoroughly check references.

At the time of employment, the employer and the potential employee must under-



Mr. Bob Totten

stand the job requirements of the position. This understanding is enhanced by having on hand an up-to-date and comprehensive job description to ensure there is no confusion. In this way the job description serves as a foundation for the work to be done as well as a basis for future appraisals of the incumbent's performance.

Performance Appraisals

Performance appraisals are an integral part of today's standards of work. However, they are sometimes seen as expendable, especially when a business is in a rapid state of growth or managers find themselves too busy to take the time to fill out forms and discuss their opinions with employees. Ideally, a performance appraisal should be held within three months of the hiring of an individual and at least annually thereafter. This enables the employer to discuss with the incumbent his strengths on the job, as well as areas where improvements are necessary.

Another area that requires attention is training and development. The wise organization provides training opportunities for its employees which enhance their productivity and make them valuable assets. In smaller organizations, employers may find it more suitable to assist employees in their training program by providing tuition refund plans which help employees upgrade their skills on their own time.

The foregoing strategies should help

reduce the number of terminations that we are now seeing; however, if the organization is not yet at a point where it can implement all or most of these plans, a termination of employment may be inevitable.

We have learned over time that the process of termination need not be a traumatic experience for employer and employee. A relatively new approach coined "creative outplacement" has been used successfully over the past several years and may reduce not only termination settlements, but also the general upheavals which accompany them.

Creative Outplacement

With creative outplacement, the employer assumes an active interest in the welfare and future of the terminated employee. The process begins by informing the employee that he or she is no longer suitable for the job which they now hold. This fact in itself is not an easy one but it stops short of actual termination. When the news is delivered, it must be given with both firmness of purpose and compassion for the person's future welfare.

At this point the organization must be prepared to provide the employee with some direction over the next few weeks or months. Many employers now provide designated employees with intensive career counselling support to ease the transition to more suitable future employment. This assistance may be provided from within the organization if skilled counsellors are available, or from external counsellors who are familiar with the business world and are experienced in helping people identify their strengths and weaknesses.

The centrepiece of outplacement counselling is usually the testing program which assists the person to focus on his/her strengths and weaknesses in terms of life and work interests, particular abilities, and specific skills. It is also a common suggestion that the person obtain a complete medical assessment so that any future career planning is built on skills, interests and current state of health. Following an in-depth assessment of the person's background and desires, a plan and search for alternative employment can be formulated. Occasionally,

the search goes no further than the current organization which may be able to place the employee in a more suitable position for his or her particular attributes. If an internal transfer is not possible, it is necessary for the individual and the counsellor to make plans for an outside search. Such a plan normally includes target employers, types of work preferred, résumé building to highlight individual strengths, and finally, a reasonable date upon which the employee will agree to vacate his or her position.

While not every creative outplacement project can be successful, experience has shown that in the majority of cases, a terminated employee is much happier leaving the job with definite plans and realistic goals to pursue. The benefits to the organization are obvious. The relatively low cost of such counselling, is only a fraction of what is usually paid out in severance allowances to the terminated employee. Δ

Bob Totten is owner of Totten & Associates, a London, Ontario consulting firm specializing in human resource issues such as search, relocation and career counselling, job evaluation and training strategies.



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Quality Assurance: A Process for Continuous Improvement

D.J. Kenny, BSc, DDS, PhD and C.L. Valentino, MPA, MBA, CHE

This is the second of two articles on related subjects concerning Risk Management and Quality Assurance in private practice. The first of these articles was published in the March 1991 CDA Journal.

Medical quality assurance is not a new idea. In 1850, Florence Nightingale advocated two quality assurance principles: the education of nurses and the study of mortality rates in military hospitals.¹ These early quality assurance standards led to a decrease in mortality rate from 40 to 4%. One hundred years later, in 1950, the Canadian Council on Hospital Accreditation was established to develop standards for excellence of care, to conduct hospital surveys and to recognize compliance with standards.² In 1986, the Canadian Council on Hospital Accreditation asserted that a hospital's eligibility for three year accreditation was contingent upon the establishment of a comprehensive quality assurance (QA) program.¹ The Joint Commission 1990 Accreditation Manual for Hospitals states that health care facilities must show evidence of an established quality assurance program that objectively and systematically monitors and evaluates the quality and appropriateness of patient care and pursues opportunities to improve patient care and resolve identified problems.³ Norfleet noted that the recent rise in the number of complaints about dentists was primarily in the area of quality of care.⁴ Buck Rogers, retired Vice-President of IBM summed it up in his statement that "It's a shame, but whenever you get good service, it's the exception, and you're excited about it. It ought to be the other way around."⁵

Quality Defined

Kahn defined quality as the set of characteristics (product or service) that could be judged to be on a continuum from acceptable to excellent care.¹ Allen noted that the output of a service company is produced and appreciated (judged) at the time of delivery. This makes service

businesses more sensitive to operational execution than the manufacturing sector. Manufacturers can inventory their output, test for quality later, and correct operational deficiencies before delivery to the customer.⁶ Large and small companies alike are learning that in today's competitive marketplace, it is good service, not product superiority or low prices that determine success. Thus, leading organizations create environments in which their staff have inverted the organizational pyramid and placed the patient's satisfaction on top.⁷ The critical moment occurs when employees and/or the service meet the client. It is at these "moments of truth" that specific standards must meet or exceed patient expectations with respect to quality, timeliness, quantity and cost of the service.^{1,7}

Quality Assurance Defined

Quality assurance is defined as a process that allows one to systematically evaluate the care given, the environment in which it is given and the consequences

of past performance with the aim to improve future performance.¹ It deals with the personal philosophy of the dentist and staff concerning matters of quality of service and marketing.⁸ Stock and LeFroy stated that QA is the optimal achievable patient result that avoids complications produced by excessive treatment, yet pays attention to patient and family needs in a manner that is both cost effective and reasonably documented.⁹ Quality assurance programs go one step further and utilize quality control, the comparison of an actual service to a standard to identify, resolve and improve service.¹⁰ Programs are therefore designed to *protect* patients, *improve* care and *measure* compliance with predetermined standards.⁹

The Process

Institution based traditional QA programs focused on the collection and monitoring of a broad range of patient and management information, peer review of appropriateness of care and

TABLE I
RM/QA Contrasted

	Risk Management	Quality Assurance
Basis:	compliance with regulations to avoid negligence	problem solving for optimal patient care quality
Participants:	management	clinicians, staff
Standard of Care:	reasonable, prudent person	best possible care
Target Populations:	physical and human assets	patient
Focus:	individual incidents because of potential asset loss	patient related incidents: more global approach to determine trends
Compliance:	statutory and college regulations	current philosophy of the dental care
Measurement:	prevention of financial loss is difficult to quantify	outcomes easier to quantify
Reason for development:	risk: loss, cost: benefit analysis	monitoring delivery of care

Adapted: Stock, R. and LeFroy, S. Risk Management: A Practical Framework for Canadian Health Care Facilities and Quality Assurance and Risk Management Program, Victoria General Hospital, 1984, Halifax, Nova Scotia.

TABLE II

RM/QA Integrated

Maintenance Goals/RM	Target Goals/QA
all automatic processors function at the optimal temperature range	first radiographs are of diagnostic quality
latex gloves standard adhered to	no evidence of communicable illnesses among staff
RM/QA educational sessions	staff contribute improvements to the RM/QA program

Adapted: Kahn, J. Stepping Up to Quality Assurance

reassessment to bring outcomes in line with expectations.¹¹ Current QA programs focus on prevention and continuous improvement.¹¹ Prevention becomes paramount when one considers that 96% of dissatisfied customers (patients) choose not to complain directly but to tell 9 or 10 friends or acquaintances of their dissatisfaction.⁵

In a competitive environment, quality is the performance of specific activities in a manner that will improve health and prevent the deterioration that would have occurred as a function of the disease process.¹² Furthermore, quality of care consists of two elements: the selection of the right diagnosis or treatment and the performance of these activities in a manner that will maximize positive results. QA is a measure of *outcomes* and how they relate to quality of patient care.⁹ QA's narrow focus on measurement and monitoring the quality of service is blind to the process and areas of weakness that contribute to suboptimal quality service.¹³ The formalization of the quality/process link is made by integrating QA with Risk Management (RM). QA defines and sets the standards for the quality of care. RM protects the practitioner's reputation by minimizing financial asset and human resource risks. Marrying the QA objective of monitoring care delivery with the RM objective of asset protection leads to a practice that is responsive to the needs of its patients and staff: the total quality assurance approach.¹⁴

The Total Quality Assurance Approach

The total quality concept permits entrepreneurial clinicians to shift their focus to achievement of the expectations of their current and potential patients or markets. The acid test of an organization's responsiveness is the customer satisfaction it creates.¹⁴ Different dentists can deliver the same end results, but the oper-

ational process that produced the services can vary widely.¹¹ Total quality is achieved when the practice focus shifts from meeting predetermined output goals to understanding and pleasing the patient.¹³ Dental practices that have achieved consistent delivery of a high quality service have done so by creating an environment that is responsive to the patient.⁵

Marrying RM and QA: Differentiating Your Practice

It is a sound marketing strategy for dentists to seek to bring about a voluntary exchange between themselves and their patients. As profit-oriented clinicians they must match the attraction of patients' discretionary dollars with the provision of their services.¹⁶ As Kotler and Clarke noted, the skilled dentist/marketer understands, plans and manages the exchange process with the purpose of achieving organizational objectives. Marketing relies heavily on designing an organization's offerings in terms of the target market's needs and desires.¹⁶ As Drucker, a leading management theorist states, "the aim of marketing is to make selling superfluous."¹⁶ Valentino and Kenny noted that when dentists marry RM with QA, the marketing of patient satisfaction becomes primary and "selling" becomes unnecessary. Although QA is considered primarily the responsibility of the practitioner and RM the responsibility of administration in institutions, both have the objective to positively influence patient care (Table I). After all, optimal quality care can only be promoted when one has resolved basic patient safety issues.¹⁰

This can best be illustrated by an analogy of a sailor who goes out with the target goal (QA) of crossing a channel and the maintenance goal (RM) of staying afloat during the sail. The sailor's target

goal is identical to the dentist who defines the standard of quality of treatment he/she will accept for his/her patients. The maintenance goal of the sailor, to stay afloat, is identical to the development of RM standards that verify the dentist does not violate legislative or college regulations; so the risk of exposure to financial loss is minimized. Clear direction by the dentist as to acceptable standards of care will motivate employees to identify with the RM/QA goals and work towards them. Thus the marriage of RM and QA is complete. Remember, the sailor can never reach his target goal without first having verified that his boat is seaworthy. QA cannot be achieved without first verifying that resources are capable of allowing achievement of the expected outcome (Table II).

The Dentistry RM/QA Program

The Dental RM/QA Program of *The Hospital for Sick Children* was based upon the notion that all staff understand and participate in service to achieve quality care through continuous improvement.¹⁵ The concept involves the following principles:

- dental care is very good today, but it can be better tomorrow;
- continuous improvement of service requires an investment in managerial time, capital and technical expertise;
- success depends on how dentists treat both their internal (hospital staff) and external (patients, referral sources) customers.

A RM/QA Analysis

As described in the previous paper, the potential problems of radiation protection, infection control and program maintenance are outlined from the QA perspective.¹⁷

Radiation Protection: The quality of care standard for diagnostic radiographs is that there will be no repeat radiographs. Analysis of the RM monthly repeat rate, step-wedge and time/temperature tests should demonstrate no trends that indicate the quality of radiographic care has diminished. Deviations from standard are rectified by re-training staff, technical expertise or capital investment.

Infection Control: The quality of care standard with respect to infection control is non-productive staff time attributed to illness. Observation of common illnesses among staff members and patients is an indicator that infection control standards may be breached. Analysis of the RM log

of infection control violations may indicate unacceptable behaviours.

QA Program Maintenance: The quality standard with respect to QA success is the profitability of the practice. Unattained profit expectations or reduced patient caseload is one indication of inadequate service. Objective and careful analysis of patient expectations against service received and the ability of the RM/QA program to verify that these needs are met is the first step to improve the success of the practice.

Summary

As E.S. Woodlark Jr., Chairman of Du Pont states, "Continuous improvement is vitally important in today's environment. The world is full of savvy, agile competitors who know quality makes a difference."¹⁸ Dentists are part of the health care industry and compete for their patients' discretionary dollars. Careful attention to the development of an integrated RM/QA program for their dental offices is one means of ethical marketing for patient satisfaction. Lessons from the competitive hospitals in the United States and current practices of successful service industries should form part of the framework of the QA component of a practice. A marketing plan is good sense in today's turbulent economic environment and ethical marketing will make the risky "selling" of dental treatment unnecessary. Δ

Ms. Valentino is Manager, Department of Dentistry and Dr. Kenny is Dentist-in-Chief, The Hospital for Sick Children and Professor, Faculty of Dentistry, Toronto.

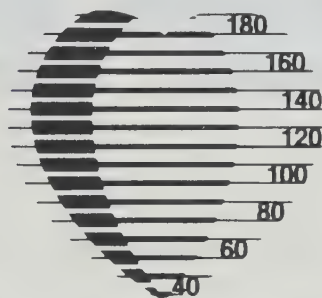
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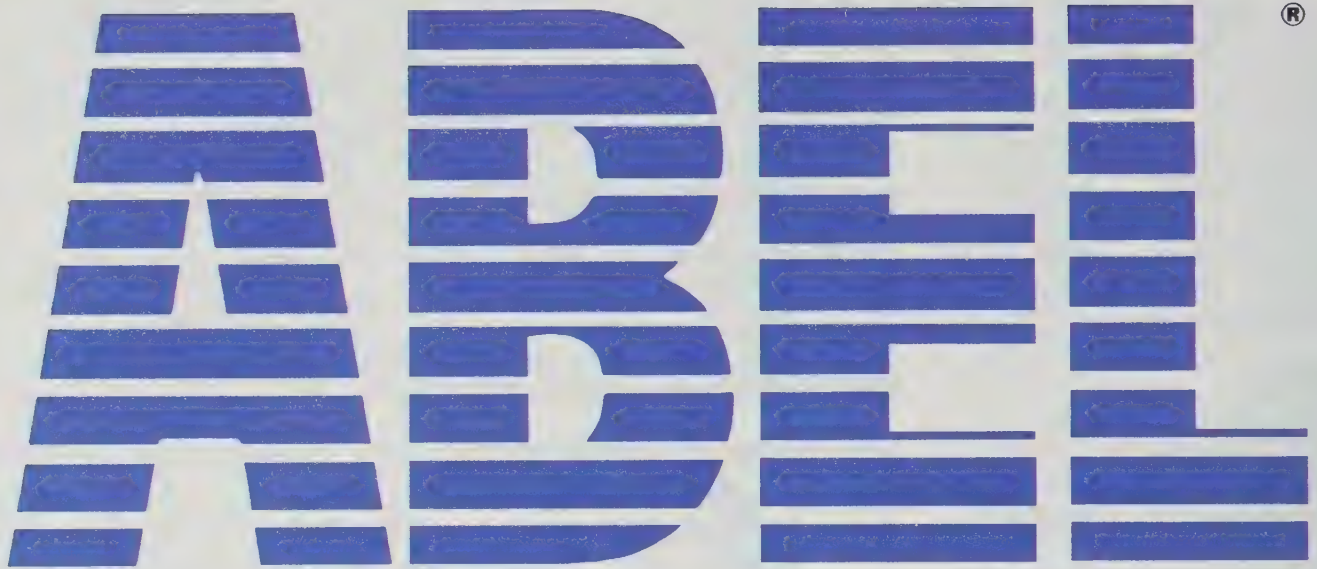
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Dose/response relationships in clinical studies of mercury toxicity: Statistical considerations

L.A. Molot, PhD
C.A.G. McCulloch, DDS, PhD
Toronto, Ontario

The deleterious health effects of mercury used in dental amalgam restorations have been extensively debated but there has been little progress towards reaching a consensus. The conclusions of some reports expressing alarmist views¹ and others stating that mercury poses no systemic danger to dental patients² seem premature. To resolve this issue, properly designed clinical investigations are needed.^{3,4}

While several studies have demonstrated quantitative relationships between exposure to amalgam and levels of mercury in blood, brain and other tissues,⁵⁻⁸ deleterious effects on human health directly attributable to mercury have not been demonstrated. As Enwonwu⁴ points out, sensitive and objective biological indicators of mercury-induced damage are lacking for humans chronically exposed to low doses. Several reports have proposed neural functions and neuropsychological symptoms as potential response indicators,⁹⁻¹¹ but adequate data are lacking on the specificity and sensitivity of these tests compared to "gold standards" of toxicity assessments.¹²

The issue of exposure to low levels of chemicals and subsequent responses is both complicated and controversial because classical toxicological and allergic responses and their corresponding pathological mechanisms may not be involved.¹³ A substantial body of evidence suggests that chemical sensitivities to a wide variety of chemicals can occur within a small and as yet unknown portion of the population.¹³ Hence, it is both reasonable and prudent to consider the possibility that mercury in dental amalgam may be capable of inducing responses which fall into the category of chemical sensitivities. While the mean response of a test population may indicate that mercury in dental amalgam can be tolerated without ill effects, it is conceivable that a small subpopulation may be sensitive. Such individuals deserve identification as well as alternative treatments if indeed it can be

demonstrated that they are at high risk.

This communication presents some statistical considerations which should be incorporated into the design and analysis of studies aimed at establishing the presence of sensitive individuals in the population at large. Whereas averaging techniques are typically used to explore responses of large, relatively homogeneous populations and are generally valid, alternative approaches are needed to establish the presence of low numbers of high risk individuals. The statistical considerations presented here are predicated upon the future development of reliable and sensitive indicators of chronic exposure to low levels of mercury and the establishment of appropriate diagnostic tests with high specificity and sensitivity which indicate health problems attributable to mercury toxicity.

Establishing a relationship between mercury exposure and some response, R, can take several approaches (i.e., testing for significant differences in R between a control group and an exposed group). A variation of this approach is to determine whether a significant dose/response relationship exists using regression techniques over a wide range of doses. In the hypothetical example outlined below, dose of mercury has been equated to the number of amalgam restorations present in the mouth of each individual.¹⁴

Consider the linear dose/response relationships in **Figure 1**. (Non-linear relationships are, of course, possible.) Responses to each of several doses (i.e., 2, 4, 6, . . . 12 amalgams/person) were randomly generated (SAS, Cary, North Carolina) with a lognormal distribution and plotted versus dose. The lognormal distribution was chosen for this exercise because it has a positive tail (positively skewed) as might be expected for populations containing individuals with high responses to mercury. Biomedical data sets from human investigations frequently exhibit positively skewed distributions.¹⁵ The slope and correlation of

Figure 1A are significantly different from zero, whereas the slope and correlation of **Figure 1B** are not. It would be concluded from **Figure 1A** that the test population contains significant numbers of individuals who are sensitive to mercury in dental amalgam, whereas it would be concluded from **Figure 1B** that mercury sensitivity is not a significant phenomenon in the test population, disregarding the possibility of confounding factors.

Within each dose there is a range of R. **Figure 2** shows the hypothetical distribution of responses at one dose from **Figure 1A**. The skewed distribution shows that a portion of the test population exhibits a relatively high response. When all of the responses are plotted versus dose, a typical XY scatter plot is seen (**Fig. 1**). The increasing range in R as a function of increasing dose in **Figure 1A** might occur if the response of sensitive individuals increases with increasing exposure, yet within each dose there are test subjects who are insensitive.

It can be seen from **Figures 1B** and **2** that while some individuals may be relatively sensitive to mercury, they are in danger of being overlooked because statistical averaging techniques group together all individuals within a given dose. Therefore, attention must be paid to the distribution of responses within each dose.

One approach in overcoming the problem of measuring the responses' low numbers of sensitive individuals within a population which may be largely insensitive is to separate the results within each dose into two subpopulations consisting of, say, the upper 10 percentile and the remaining individuals in a second less sensitive group. Separate statistical analyses could be performed on each subgroup and their dose/response relationships compared. A similar strategy has been suggested in the planning of dental caries trials in which "non-reactors" who contribute little or no information to the testing of the hypothesis are screened

out.¹⁶ Subjects are pre-selected to include only those who are likely to have the highest caries incidence.

Although maximum acceptable limits for elemental mercury have been established,¹⁷ critical thresholds of appropriate toxicological responses cannot be decided upon until accurate diagnostic tests are available. It is conceivable that the whole population as well as the sensitive portion of the population exhibits positive dose/response relationships, yet the responses may not be deemed health problems. Nevertheless, there is a possibility that a small portion of the population will exhibit responses high enough to put them at risk, while the general population is insensitive. To establish the existence and prevalence of these individuals will require accurate methods to quantify mercury dose, sensitive and specific tests of mercury toxicology, sample sizes commensurate with low Type I and Type II errors and appropriate statistical techniques. If distributions of mercury toxicity are positively skewed, then establishing safe "levels" of the number of dental amalgam restorations based on mean population responses may not protect sensitive individuals. Δ

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Reprint requests to Dr. McCulloch.

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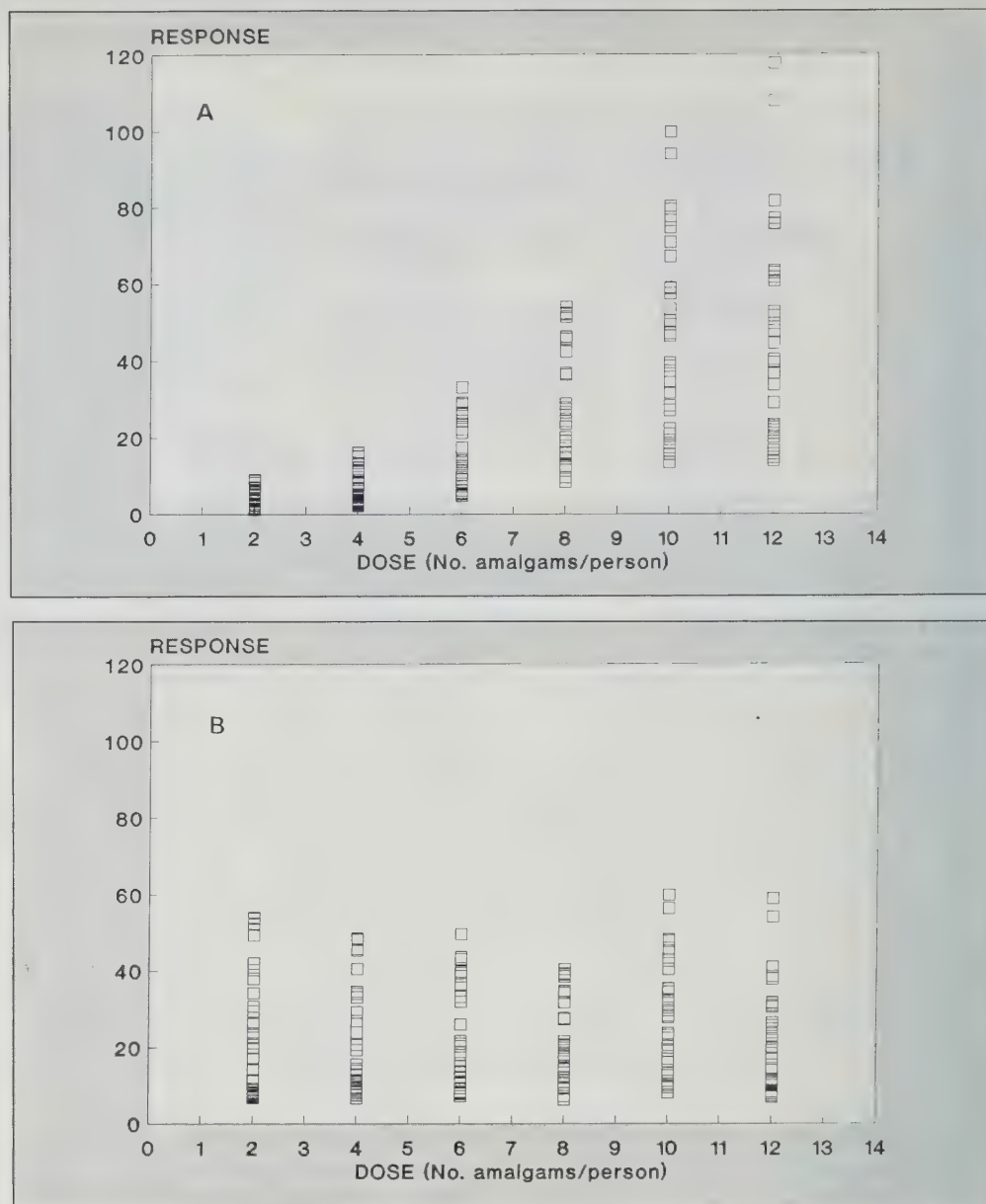


Figure 1. Hypothetical responses to dose. Thirty responses were generated randomly for each dose using a lognormal distribution. In Figure 1A, the slope of the linear regression is significantly different from zero ($r = 0.70$), but in Figure 1B the slope is not ($r = 0.05$).

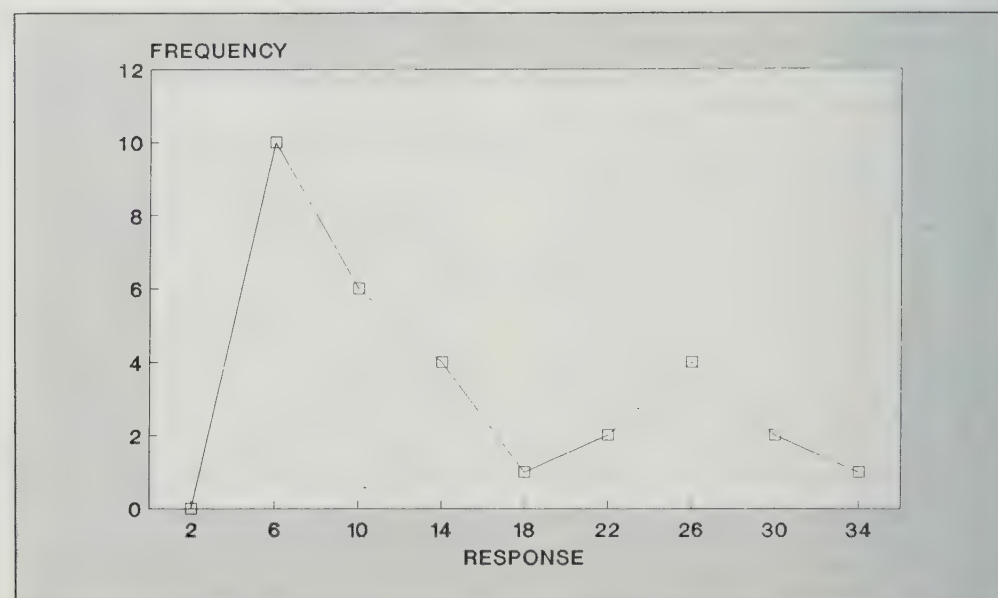


Figure 2. Hypothetical frequency distribution of responses from Figure 1A at a dose of 6 amalgams/person. The positive tail indicates that the test population includes some relatively sensitive individuals.

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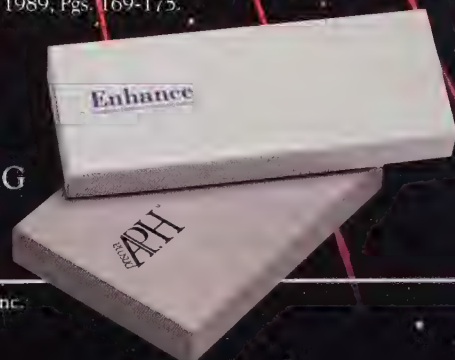
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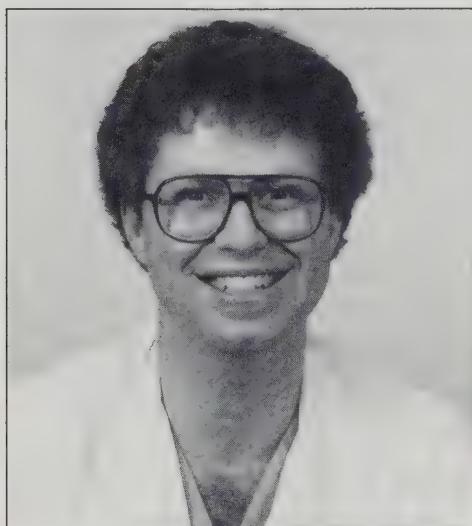
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Mitral valve prolapse: A review of the Syndrome with Emphasis on Current Antibiotic Prophylaxis

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ABSTRACT

Mitral valve prolapse syndrome (MVPS) is the name given to the heart valve abnormality described by Barlow over two decades ago. This condition is of particular importance to the dentist as these patients are thought to be at risk of developing infective endocarditis with routine dental procedures which may cause gingival bleeding. This paper is an updated version of an article that originally appeared in the *University of Toronto Dental Journal* in 1990.¹ In 1984, guidelines for antibiotic prophylaxis were provided by the American Heart Association (AHA).² More current prophylactic regimens are also presented, with emphasis on the current recommendations of the AHA, recently published in December of 1990.³



George K.B. Sandor

SOMMAIRE

Le ballonnement de la valve mitrale ou syndrome de Barlow est le nom donné à une anomalie affectant la valve du cœur telle que l'a décrite Barlow il y a plus de vingt ans. Il importe que les dentistes connaissent ce syndrome parce que les patients qui en sont atteints risquent, croit-on, d'avoir une endocardite infectieuse quand ils reçoivent des soins dentaires pouvant faire saigner leurs gencives.

Cet article est une mise à jour d'un article qui a d'abord paru dans le *University of Toronto Dental Journal* en 1990¹. On rappelle également les directives à suivre en antibiothérapie que l'American Heart Association (AHA) a publiées en 1984², ainsi que les méthodes prophylactiques plus récentes en soulignant surtout les recommandations que l'AHA a publiées en décembre dernier³.

Introduction

Mitral valve prolapse syndrome (MVPS), also known as Barlow's syndrome, parachuting valve syndrome, billowing mitral valve syndrome, and click syndrome, is twice as common in

females as it is in males. MVPS occurs in 6-10% of the adult population and tends to decline with increasing age.⁴⁻⁶

The mitral valve (bicuspid valve), is located between the left atrium and left ventricle and consists of an anterior and posterior leaflet.⁶ Upon ventricular contraction (systole), the mitral valve normally blocks blood back-flow into the left atrium. This function occurs at the beginning of ventricular systole when the papillary muscles contract in order to secure the chordae tendineae which approximates the mitral leaflets and prevents their eversion.⁷ Prolapse is said to occur when one or both mitral leaflets protrude (billow) abnormally into the left atrium.⁴ The posterior leaflet tends to prolapse into the left atrium more often than the anterior leaflet.^{4,6,7}

Characteristically when listening to the chest with a stethoscope, a mid to late systolic click is heard. This may be accompanied by a subsequent mitral regurgitation murmur, if blood re-enters the left atrium^{4,6,7} (Fig. 1). The click results from tension in the chordae tendineae being released, causing a chordal snap, thus producing the characteristic sound heard on auscultation.^{5,7} Some patients present with a silent form of MVPS, in which neither a click nor a

murmur is heard.^{5,7} In other patients, systolic clicks may even be multiple. Some patients have a mid-systolic click without a murmur, others may have a late systolic murmur without a click.

The click and murmur can be made to occur earlier or closer to the first heart sound with manoeuvres that decrease left ventricular volume. These include movements such as standing, the valsalva manoeuvre or inhalation of amyl nitrate. By decreasing the left ventricular volume, the propensity for the mitral valve to prolapse is increased making the click occur earlier and allowing the murmur to last longer. Conversely, manoeuvres that increase left ventricular volumes diminish the propensity for the mitral valve leaflets to prolapse. This causes the click murmur complex to be delayed. The murmur is thus shortened and may even disappear.

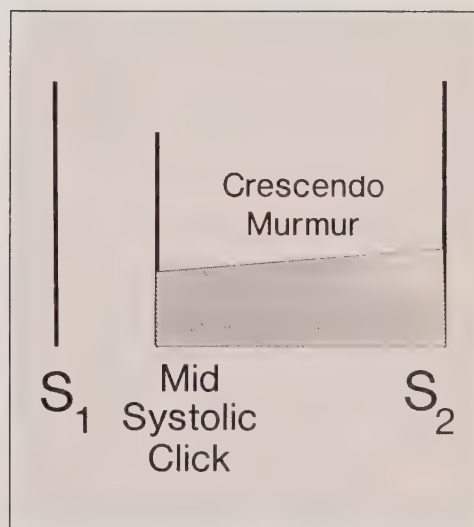


Fig. 1. A simplified diagram of the "typical" MVPS heart sounds heard on auscultation.

S_1 represents the first heart sound often heard as "lub". It is caused by the closing of the mitral and tricuspid valves during ventricular systole.

S_2 represents the second heart sound often heard as "dub". This is caused by the closing of the aortic and pulmonic valves during ventricular diastole.

The mid systolic click occurs between S_1 and S_2 with the classic crescendo type systolic murmur following the click and ending at S_2 .

Pathophysiology

Mitral billowing may occur due to a myxomatous degeneration of the valve or a ventriculo-valvular disproportion.^{6,8} Some familial transference has been reported as well as coexistence of atrial septal defects.⁶ MVPS is strongly associated with inheritable connective tissue disorders, including Ehlers-Danlos syndrome and Marfan's syndrome.⁹ In the absence of these syndromes, it is associated with a typical physique. Characteristically, this includes a narrow antero-posterior chest dimension, long arm span and low body weight.^{10,11} There does not appear to be a relationship between MVPS and coronary artery disease or rheumatic heart disease.⁴

Clinical Manifestations

The clinical manifestations^{4,6,8} associated with MVPS include:

1. Chest pain;
2. Complaints of palpitations;
3. Skipped beats;
4. Irregular heart rhythms, especially tachyarrhythmias;
5. Light-headedness;
6. Dyspnea;
7. Anxiety;
8. Panic attacks;
9. Fatigue;
10. Sudden death (rare, but documented).

In some cases, the chest pain may be sharp and confined to the left chest, mimicking angina and may be precipitated by exercise. However, many individuals with MVPS present with absent symptoms, which may develop with time.^{5,6,12}

Diagnosis

Diagnosis is usually made during routine physical examination with a stethoscope.^{5,6} Abnormalities during auscultation include a click and/or a murmur. Examination for the characteristic click is performed in various positions including sitting, squatting, standing and reclining.⁵⁻⁷ In some patients, a click is heard without a subsequent murmur.⁵ Some patients may even lack symptoms and may have normal heart sounds (without a click or murmur).^{4,5,11} These patients may be potentially at risk for bacterial endocarditis, especially since antibiotic prophylaxis would not seem to be indicated.⁵

Once MVPS is suspected, echocardiography (an ultrasonic examination of the heart), is the test of choice to confirm the diagnosis. In 70% of cases, echocardiography will show mitral regurgitation.⁶ An

angiogram may also aid in the diagnosis. This involves cannulation of a femoral vessel and the injection of a radiopaque dye into the circulatory system. Another method of diagnosis is cardiac catheterization, where dye is injected directly into the chambers of the heart;⁶ this method, however, is only undertaken when repair of the mitral valve is being considered. Both angiography and cardiac catheterizations are invasive and are usually unnecessary to diagnose MVPS. Physical examination by auscultation followed by echocardiography are generally diagnostic when used together. Echocardiography has a high sensitivity and specificity. Electrocardiography is rarely useful as 95% of patients with MVPS have a normal EKG.⁶

Complications

The four major complications associated with MVPS include: cerebral ischemia, progressive mitral regurgitation, arrhythmias with sudden death, and infective endocarditis.^{5,6}

Cerebral Ischemia

There is a relationship between MVPS and transient ischemic attacks or stroke, particularly in patients under the age of 45.^{5,6} The overall risk of stroke is 1/100,000 per year.⁶ This is thought to be caused by platelet-fibrin thrombi from clots formed around the abnormal mitral valve.^{5,6} These may break off at the roughened valve surface and enter the circulation, causing an embolic phenomenon.

Progressive Mitral Regurgitation

MVPS is the most common cause of severe mitral regurgitation in western countries. This may require valve replacement surgery at some time in the affected patient's life.

Arrhythmias and Sudden Death

MVPS as the sole cause of sudden death is remote. In fact, it is so rare that only 42 cases were reported over a 10-year period worldwide.^{5,6,7} Tachyarrhythmias appear to be the most likely cause of death and are usually the result of trauma or stress.

Infective Endocarditis

For patients with MVPS, the overall risk of infective endocarditis is approximately 1/5,000 per year, a four-fold increase in risk compared to the general population.⁶ If a murmur is present, the risk of infective endocarditis increases to 1/1,920 per year. In the absence of a murmur, the risk

drops considerably — to 1/22,000.⁶

The abnormality of the valve associated with MVPS causes an area of turbulence which serves as a focus for vegetation formation or bacterial growth.^{4,5} With this predisposition to infective endocarditis, both the physician and the dentist should be involved with the prevention of this condition. The bacteria responsible for approximately 80% of cases of endocarditis are *Streptococcus viridans*, from an intraoral source and *Staphylococcus aureus*, from a cutaneous source.

Prevention and Antibiotic Prophylaxis

Patients with MVPS may be at risk for developing infective endocarditis. Any dental procedure likely to cause bleeding

TABLE I

Dental Procedures Which May Place Susceptible Patients at Risk of Infective Endocarditis

1. Procedures likely to cause gingival bleeding:
 - a) Extractions and other oral surgery
 - b) Periodontal surgery including scaling, root planing and subgingival curettage
 - c) Subgingival cavity preparations: i.e. Class II, Class V
2. Drainage of dental abscesses by incision, tooth removal, or through pulp canal
3. Endodontic procedures on infected pulps with instrumentation beyond the apex
4. Manipulation of mobile teeth, i.e. impressions, repositioning of teeth after trauma
5. Insertion of immediate dentures
6. Re-implantation of avulsed teeth

Procedures Not Requiring Antibiotic Prophylaxis

1. Endodontics confined to the root canal
2. Orthodontic appliance adjustments
3. Restorative procedures on the occlusal or incisal surfaces of teeth (no rubber dam clamp used)
4. Alginate impressions of periodontally healthy teeth, non-mobile teeth and edentulous patients
5. Injections of local anesthesia when tissue surface is prepared carefully with an antiseptic solution (except intraligamentary injection)
6. Spontaneous shedding of primary teeth

This table is a composite of recommendations from the *Austr. Dent. J.* Feb. 1980:55,¹⁴ and *JAMA*, Dec. 12, 1990, vol. 264:2920.

can produce a transient bacteremia.^{13,14} Even procedures such as dental prophylaxis, probing, matrix band and rubber dam clamp placement can result in the introduction of bacteria into the blood stream. The risk of transient bacteremias for various procedures has been documented. When teeth are extracted, bacteremias are likely to occur in as much as 85% of the cases and with periodontal surgery, 88% of the time.¹⁰ Various dental procedures requiring antibiotic prophylaxis have been outlined by the Therapeutics Advisory Committee in Australia in 1980¹⁵ and by the American Heart Association in 1990³ (Table I).

Many physicians believe that antimicrobial prophylaxis, before procedures that may cause transient bacteremia, can prevent endocarditis in patients with valvular heart disease, prosthetic heart valves or other cardiac abnormalities.¹⁶ Although there is no evidence from any double-blind controlled study that pre-operative antibiotics will prevent infective endocarditis, the potential morbidity and mortality associated with this condition warrant their use in patients at risk.^{3,17} Definitive data to provide guidance in the management of patients with MVPS are scarce. It is clear that, in general, such patients are at a low risk of developing endocarditis, (when compared to heart valve replacement patients), but the risk-benefits ratio of prophylaxis in MVPS is uncertain.¹⁸

The dentist must consider certain factors prior to the use of antibiotics, such as the microorganisms involved, the sensitivity of the organism to the antimicrobial agent, and the possibility of hypersensitivity reactions.¹³ Table II outlines the 1984 American Heart Association regimen for the prevention of infective endocarditis for MVPS and other valvular abnormalities.¹⁸ Newer regimens containing amoxicillin have now appeared.^{3,16,19} Table III and Table IV outline the newest recommendations from the AHA.³ The *alpha hemolytic (viridans) streptococci* are the most common cause of endocarditis following dental procedures. The antibiotics amoxicillin, ampicillin and penicillin V are equally effective *in vitro* against *alpha hemolytic streptococci*. Amoxicillin is now recommended because it is better absorbed from the gastrointestinal tract and provides higher and more sustaining serum levels. According to the AHA the choice of penicillin V rather than amoxicillin as prophylaxis against *alpha hemolytic streptococcal* bacteremia following dental, oral and upper respiratory tract procedures is rational and acceptable.³

Those individuals who are allergic

TABLE II

Standard Regimen:	
Adults 2 g Penicillin V PO 1 hour before procedure and 1 g 6 hours later	Children (< 27 kg) 1/2 the oral dose
For patients unable to take medications orally:	
Adults 2 million units of aqueous Pen G IV or IM, 30-60 min before procedure and 1 million units 6 hours later	Children (< 27 kg) Aqueous Pen G, 50,000 units/kg IV or IM 30-60 min before procedure and 25,000 units/kg 6 hours later, or switch to 500 mg tablets for the single postoperative dose
Special Regimen:	
Oral regimen for penicillin-allergic patients	
Adults Erythromycin, 1 g PO 1 hour before the procedure and 500 mg 6 hours later	Children (< 27 kg) Erythromycin 20 mg/kg PO 1 hour before the procedure and 10 mg/kg 6 hours later
<i>Circulation</i> 70:1123A Dec. 1984. ²	

TABLE III

Oral Antibiotic Endocarditis Prophylaxis for Adult Dental & Upper Respiratory Procedures

Amoxicillin:	3 grams 1 hour before & 1.5 grams 6 hours after initial dose
Amoxicillin/Penicillin Allergic Patients:	
Erythromycin:	Erythromycin Stearate: 1 gram 2 hours before and 500 mg 6 hours after initial dose
OR	Erythromycin Ethylsuccinate: 800 mg 2 hours before & 400 mg 6 hours after initial dose
Amoxicillin/Erythromycin Allergic or Intolerant Patients	
Clindamycin:	600 mg 1 hour before, and 150 mg 6 hours after initial dose
These regimens may include those patients with prosthetic heart valves and other high risk groups.	
<i>JAMA</i> . December 12, 1990 vol. 264(22): 2920.	

to the penicillins such as penicillin, amoxicillin or ampicillin, should be treated with the suggested alternative oral regimens. Erythromycin ethylsuccinate and erythromycin stearate are recommended because of more rapid and reliable absorption providing higher and more sustained serum levels than with other forms of erythromycin. For individuals who cannot tolerate either penicillins or erythromycins, clindamycin is the alter-

native.³ It is notable that tetracyclines and sulfonamides are not recommended for endocarditis prophylaxis.

The current American Heart Association recommendations for the prevention of infective endocarditis advises that the length of time that should elapse between serial dental appointments be at least 7 days. There is some concern that resistant strains of oral streptococcal organisms could develop after repeated series

TABLE IV

Paediatric Oral Antibiotic Prophylaxis for Dental & Upper Respiratory Procedures

Prevention of bacterial endocarditis

Amoxicillin:

50 mg/kg Amoxicillin 1 hour before,
25 mg/kg 6 hours after initial dose

For Penicillin-allergic patients

Erythromycin:

Erythromycin Ethylsuccinate or Erythromycin stearate *
20 mg/kg 2 hours before procedure
10 mg/kg 6 hours after initial dose

Clindamycin:

Clindamycin 10 g/kg 1 hour before procedure
5 g/kg 6 hours after initial dose

The following weight ranges may also be used for the initial paediatric dose of amoxicillin:

< 15 kg	750 mg
15-30 kg	1500 mg
> 30 kg	3000 mg (full adult dose) *

*Total paediatric dose should not exceed full adult dose.

JAMA. December 12, 1990 vol. 264 (22):2920.

of penicillin prophylaxis.²⁰ The British Society of Antimicrobial Chemotherapy, for example, permits two doses of amoxicillin prophylaxis at weekly intervals, but not a third.²¹ Little and Falace,¹³ Kaplan and Durak,²² and Fleming et al.,²⁰ recommend that multiple dental appointments be scheduled one week apart, without altering the standard antibiotic regimen of the American Heart Association.

Those patients who take continuous antibiotic regimens to prevent the recurrence of acute rheumatic fever may have *viridans streptococci* in their oral cavities that are relatively resistant to penicillin, amoxicillin or ampicillin. In such cases the dentist or patient's physician should select erythromycin or clindamycin instead of amoxicillin for endocarditis prophylaxis.

Patients considered as being at high risk, including those with prosthetic heart valves, a previous history of endocarditis, or surgically constructed systemic pulmonary shunts, may develop endocarditis associated with significant morbidity and mortality. The AHA acknowledges that there are substantial logistical and financial barriers to the use of parenteral antibiotic regimens. Oral antibiotic regimens have now been used in individuals with prosthetic heart valves in other countries and failures of prophylaxis have not been a problem. The AHA therefore, now recommends the use of the standard oral regimen in Table 3 for these patients.³

Some medical practitioners may however, still prefer to use parenteral prophylaxis in these high risk patients so that consultations with the patient's physician is definitely advisable in these cases.

Prevention of infective endocarditis is aided by reducing the chance of bacteremia. This may be accomplished by keeping the mouths of affected patients clean and arresting dental disease. With active dental and/or periodontal disease, patients at risk of developing endocarditis should be encouraged to improve and attain optimal gingival health by improving home procedures.¹⁴ These may include the use of chlorhexidine containing mouthrinses.

At the time of dental extraction, chlorhexidine that is painted on isolated and dried gingiva, 3 to 5 minutes prior to tooth extraction, has been shown to reduce post extraction bacteremia according to the AHA. Other agents such as povidone-iodine or iodine and glycerine may also be appropriate. The AHA further advises that irrigation of the gingival sulcus with chlorhexidine prior to tooth extraction has been shown to reduce post extraction bacteremia in adults.³

Edentulous and partially edentulous patients may develop bacteremia from ulcers caused by ill fitting dentures. The AHA therefore recommends that denture wearers be encouraged to return for periodic examinations. They should return to the practitioner if soreness develops

beneath their denture. Particular attention should be paid to newly inserted dentures and to immediate dentures in patients considered to be at risk for endocarditis.

Recommendations to the Dentist

1. Take a thorough medical history and enquire about cardiac abnormalities such as MVPS. If a patient seems uncertain about his/her history, consult with the patient's physician as to the necessity for prophylactic antibiotics.^{23,24}
2. Use antibiotic prophylaxis as outlined by the American Heart Association.^{2,3}
3. The dentist should maximize dental procedures during the coverage period, (i.e., quadrant dentistry) in order to minimize the number of appointments requiring antibiotic prophylaxis.²⁴
4. If feasible, allow at least a 7 day interval between serial dental visits requiring coverage, to avoid the development of resistant bacterial strains.²⁴
5. Strive to have the patient achieve optimal oral health, as this minimizes the chances of bacteremia.¹⁴
6. Regular follow-up of denture wearers at risk for endocarditis with particular emphasis on immediate dentures and newly inserted prosthesis to monitor the patient for ulcerations caused by the prosthesis.

Conclusion

This paper has reviewed the syndrome of MVPS, a form of valvular heart disease. Patients affected with this condition are at risk for the development of infective endocarditis. All those with a suspect history should be treated with prophylactic antibiotics prior to dental treatments causing bacteremia. In addition, if the diagnosis is uncertain, these patients should be referred to their physicians for a physical examination and echocardiogram to establish the diagnosis. Once the diagnosis is confirmed, the proper pre-operative prophylaxis must be implemented prior to any dental treatment likely to cause gingival bleeding. These precautions are then necessary for the duration of the patient's life. Δ

Acknowledgements

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Mr. Vasilakos is a dental student at the University of Toronto.

Dr. Sandor is a senior resident, Division of Plastic Surgery, Department of Surgery, University of Toronto, and a research associate in the Department of Prosthodontics, Faculty of Dentistry, University of Toronto. He is also an oral and maxillofacial surgeon in private prac-

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Incidence of inferior alveolar nerve injury in mandibular third molar surgery

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ABSTRACT

This paper documents the incidence of inferior alveolar nerve injury and resultant sensory disturbance encountered in the removal of 100 consecutive impacted mandibular third molars. Five cases of anesthesia and/or paresthesia resulted and all but one of these resolved within six months. The lack of direct correlation between surgical exposure of the neurovascular bundle intraoperatively and the proximity of radiographic images of tooth root and mandibular canal, with the occurrence of sensory deficit, is noted. Our findings support the 1979 Recommendations of NIHCDRTM, upon which the policy of informed consent regarding nerve injury was based.*

* National Institutes of Health Consensus Development Conference for Removal of Third Molars.

SOMMAIRE

Cet article porte sur l'incidence des blessures causées au nerf dentaire inférieur à la suite de l'extraction de 100 troisièmes molaires mandibulaires enclavées ainsi que sur les désordres sensoriels que ces blessures ont pu entraîner. Il y a eu cinq cas d'anesthésie ou de paresthésie qui tous, sauf un, se sont résolus dans les six mois. Avec la perte sensorielle, on n'a relevé aucune corrélation directe entre l'exposition chirurgicale du faisceau vasculo-nerveux par méthode peropératoire et la proximité des images radiographiques de la racine dentaire et du canal mandibulaire. Les découvertes qu'on a faites confirment les recommandations formulées en 1979 par le NIHCDRTM sur lesquelles se fonde la politique de consentement éclairé touchant les blessures aux nerfs.*

Introduction

Many authors have commented on the risk of injury to the inferior alveolar nerve during surgical removal of an impacted mandibular third

molar. Several have documented the incidence of this complication.¹⁻⁶ This paper is a report of the incidence of this complication in 100 random, consecutive cases of mandibular third molar removal. It represents a retrospective review of the actual incidence of sensory nerve deficit vis-à-vis the precautionary, preoperative warning of the event — the so-called informed consent.

It is the author's custom to review with the patient referred for consideration of third molar removal not only the normal sequelae accompanying such surgery, but the possible complications and associated risks. The patient's radiograph along with a schematic illustration and a plastic cut-away model are used as visual aids to assist in conveying this information. Before proceeding, a signed, informed consent regarding the specified risks attendant to the proposed surgery is required.

This report includes 100 consecutive lower third molar removals wherein the patient had been forewarned of the risk of inferior alveolar nerve injury, on the basis that the image of the root apices either rested at the roof of the mandibular canal, crossed at least 50% of its diameter, or crossed it completely and extended inferior to the floor of the canal. Where the neurovascular bundle was actually identified intraoperatively, special note was made as to the dimension of the exposure of the nerve in the fundus of the socket. Finally, the actual incidence of nerve injury (anesthesia and/or paresthesia), was recorded and follow-up monitoring of the sensory change was included.

Method

From September 1, 1988 to October 1, 1989, 100 impacted mandibular third molars were removed from 56 patients. These were random, consecutive cases presenting on referral in a private practice situation. The patients ranged in age from 17 to 62 years; there were 34 females and 22 males. Intraoperatively, the neurovascular bundle was visualized to some extent in five cases. This amount of nerve exposure varied from 2.0 mm. to

6.0 mm., approximately. Of the five cases where the inferior alveolar nerve was seen, and therefore exposed, only two resulted in nerve alteration. These two instances occurred in the same patient (E.M.). This patient experienced paresthesia on both sides for the first two weeks. Thereafter, only the left side was affected and took six months to resolve completely. It is of interest to note that brisk, arteriole bleeding was noted intraoperatively on the left side, suggesting that the depth of injury to the bundle was perhaps somewhat greater on that side.

In contrast with this latter case, however, in one of the five cases where the inferior alveolar nerve was seen intraoperatively (A.C.), the root structure embraced the neurovascular bundle for about half of its circumference and yet no nerve injury eventuated.

Results

Of the 100 mandibular third molars removed, nerve injury, as evidenced by paresthesia or anesthesia of the lower lip and chin, occurred in five cases — all but one of which had resolved completely within six months from the time of surgery. Although inferior alveolar neurovascular bundle exposure was observed in five cases, nerve injury, as manifested by sensory alteration in the lip and chin, occurred in only two of these. There was no instance of lingual nerve alteration in this series of 100 mandibular third molar removals. The images of the root apices approximated the roof of the mandibular canal in 82 cases, appeared to partially cross the canal in five cases, and completely crossed the canal in 13 cases.

It may be of interest to note that during the period of this study, which covered about 13 months, six patients declined to proceed with surgery after the initial consultation, presumably because of the risk of nerve injury.

Discussion

The National Institutes of Health Consensus Development Conference for Removal of Third Molars, which convened in Bethesda, Maryland, in Novem-

ber, 1979, strongly recommended that patients be informed of potential surgical risks, including any permanent condition that has an incidence greater than 0.5% or any transitory condition that occurs with an incidence of 5.0% or more. The incidence in the series reported herein was 5% and, except for one case, was of a transitory nature only. The inference to be drawn from these data is that it is indeed necessary to warn the patients about the possibility of nerve injury, and the N.I.H. recommendations appear to be soundly based. However, another consecutive series of 100 mandibular third molar removals might provide different results, and such conjecture is readily acknowledged. Moreover, with the litigation experience curve rising so swiftly in this arena (7) it behooves all of us involved in rendering these services to be ultra-conservative in our estimation of nerve-injury-free surgery.

Although the image of the mandibular third molar roots completely crossed the image of the mandibular canal in 13 cases, nerve deficit symptoms occurred in only two of these cases. From these data, it is clear that nerve injury cannot be estimated on the basis of image cross-over or intraoperative nerve exposure. The intrinsic interpretative weakness, of course, in dental radiography is the absence of the third dimension. Thus, one does not know for certain whether the root of the third molar in question is actually contacting the mandibular canal or is one or more millimeters removed from it. This information could have a significant bearing on the likelihood of surgical insult to the inferior alveolar nerve during the operative procedure.

Summary

1. One-hundred consecutive cases of mandibular third molar removal were assessed with respect to injury to the inferior alveolar nerve.
2. All patients were warned about the possibility of injury to the inferior alveolar nerve and all signed an informed consent, indicating acceptance of this risk.
3. The incidence of paresthesia and/or anesthesia in the series was 5% and, except for one case, this was transitory in nature, lasting from two weeks to six months. One case of sensory disturbance still persisted after six months.
4. The inferior alveolar nerve was visualized intraoperatively in five cases but nerve alteration occurred in only two of these cases.

5. No lingual nerve sensory deficit was encountered in this study.
6. The degree of overlap of the images of the third molar roots and the mandibular canal did not appear to have any direct correlation to the incidence of sensory deficit.
7. The recommendations of the N.I.H. Consensus Development Conference for Removal of Third Molars with respect to informed consent relative to nerve injury appear to be well-founded. Δ

Acknowledgements

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Reprint requests to Dr. Swanson.

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May 9-12: American Dental Society of Anesthesiology. Contact: Mr. Peter Goulding, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.

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May 3-5: World Congress XI for Oral Implantology in London, England. Contact: Margaret Jackson, The International Congress of Oral Implantologists, 248 Lorraine Ave, Upper Montclair, NJ 07043, USA. Tel: (201) 783-6300.

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September 12-15: International Association for Orthodontics. Contact: Joanna Carey, 211 E Chicago Ave, Suite 915, Chicago, IL 60611, USA. (312) 642-2602.

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September 26-28: 3rd Asian Academy of Cranio-mandibular Disorders in Singapore. Contact: Asian Academy of Craniomandibular Disorders, c/o 268 Orchard Rd, 5th floor, Singapore 0923. Fax: (65) 7321979.

September 27-30, 1991: 13th Congress of the International Association of Dentistry for Children, Kyoto, Japan. For information contact the Secretariat, 13th Congress of the International Association of Dentistry for Children, c/o Japan Convention Services, Inc., Sumitomo Seimei Midotsuji Bldg., 4-14-3, Nishitemma, Kita-ku, Osaka 530, Japan.

September 29-30: American Board of Oral and Maxillofacial Radiology 1991 Certifying Exam in Seattle. Application deadline: March 1, 1991. Contact: Dr. A. Ruprecht, University of Iowa, College of Dentistry, DSB-356, Iowa City, IA 52242-0101. Tel (319) 335-7341.

October/Octobre 1991

October 2-5: American Academy of Periodontology. Contact: Barbara Mueller Connell, 211 E Chicago Ave, Suite 1400, Chicago, IL 60611, USA. (312) 787-5518.

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October 26-28: 17th General Meeting of the Japanese Association for Dental Science in Osaka. Contact: Japan Dental Association, 4-1-20 Kudan-kita, Chiyoda-ku, Tokyo 102, Japan.

November/Novembre 1991

November 27-30: XIIth International Dental Film and Video Festival in Paris. Enrolment deadline February 15, 1991. Enquiries: Dr. M. Dolovici, XIIèmes Journées 1991, 92 av. de Wagram, Paris, France. 33 1 42.27.89.00.

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(2-2/4)

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ONTARIO—Ottawa: Central. Busy, adult practice (40 years). Attractively priced. Owner retiring. Call Dr. Metrick (613) 236-5621. (3-14/4)

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ONTARIO—Ottawa: Dental office for sale. Large Office, very high volume. Very high gross. Suitable for 2 or 3 practitioners. Owner would associate to introduce patient. Contact CDA Box 2505. (2-6/5)

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QUEBEC—Montreal: Dental clinic and laboratory for sale. Two operatories. Private parking with or without building. Front metro. Good gross. Latin, Spanish, English, French, Greek, etc. clientele. Owner may stay to introduce buyer. Please phone (514) 276-8884 or (514) 457-5542. (07-18/11)

NEW BRUNSWICK—Bathurst: Busy, established family practice for sale. Newly renovated office. 30 new patients per month with strong recall base. Owner leaving area and willing to negotiate price. Reply in confidence to CDA Box 2500. (07-14/13)

NOVA SCOTIA—Halifax: Great Opportunity! Three-year-old practice in rapidly growing Halifax location. Beautiful new facility. Lots of parking. Two fully-equipped ops plus one shared. Good recall base and steady new patient influx. Must sell due to other commitments. Very reasonable. (902) 443-4111. (4-16/7)

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N.W.T.—Hay River: Full-time Associate required for busy four-operator clinic in friendly northern town. Family-oriented practice, full range of treatment and excellent support staff await an experienced, caring applicant. Call (403) 874-6663. (3-8/4)

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ALBERTA—Edmonton: A full-time hygienist needed for established, busy general practice. Excellent working environment. Please send resume to: Box 36039, Castledowns Postal Outlet, Edmonton, ALTA T5X 5V9. (4-12/5)

Opportunities Wanted

QUEBEC: McGill Graduate, Class of 1991, fluent in English, French and Italian. 30 years old, well-versed in the use of computers. Serious and keen about his work now looking for associateship and/or partnership or office to buy possibly in West Island to Hudson area. Write to: 1768 Cedar Ave, Westmount, Quebec H3G 1A3 ATTN: Mr. Andrea Berardelli. (4-5/4)

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BRITISH COLUMBIA: Partnership available in the beautiful Queen Charlotte Islands. Progressive practice with 5 units and 2 hygienists. Immediate full patient load and high income. This is an opportunity for a low stress lifestyle with year-round, world-class fishing, excellent boating, scuba diving and kayaking. And Vancouver is only an 1½ hour jet ride away. For further information, please contact (604) 559-8384. (3-13/13)

BRITISH COLUMBIA: Female dentist looking for a partner to share expenses in one-year-old computerized office in Delta (35 minutes from Vancouver). I am sharing 3200 sq ft with 3 family physicians, with approximately 1600 sq ft allocated to the operatories and a fourth plumbed with cabinets. There is also a consultation room. I am specifically looking for someone to split the cost of rent, cabinets and equipment. I would like to work only three days per week. I do not work on Saturdays or evenings. The rapidly growing high density area provides for excellent new patient flow and referrals. I would also be happy to pass on any patients I cannot accommodate. For more information, please call Dr. Susan Braun at (604) 590-9310 (O) or (604) 596-3072 (H). (3-5/4)

BRITISH COLUMBIA—Kelowna: Partnership for sale in well-established, thriving private practice. Please reply to CDA Box 2511. (4-18/4)

BRITISH COLUMBIA—Richmond: LOCUM REQUIRED while dentist on leave from July 1 to December 1, 1991. It is a busy, well-established general practice (75% adults). The staff is well-trained and capable of managing the practice. Phone (604) 270-7504 or (604) 271-4312 evenings and weekends or write to PO Box 94-513, Richmond, BC V6Y 2V6. (5-11/6)

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ONTARIO: Periodontist wanted for progressive multi-office Toronto periodontal practice. Associateship leading to partnership. Please reply to CDA Box 2492. (4-1/5)

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ONTARIO: Oral and Maxillofacial Surgeon needed for full-scope practice in Southwestern Ontario. Excellent opportunity for strong income and professional satisfaction. Call Dr. Bernard Lyons (519) 258-4563. (12-2/5)

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NEW-BRUNSWICK—Campbellton: Situated at the Québec border. Busy, growing and established practice, five operatories, panorex, hygienist. Potential future partnership, 35 hours a week, preferable bilingual. Currently, 2 dentists full-time, 1 dentist part-time, 1 orthodontist part-time. Call Dr. J-Claude Robichaud, office (506) 753-3339 or home (506) 759-9222. (3-6/5)

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It's My Opinion. . .

Editor's Note: This month's It's My Opinion is reprinted from an editorial which appeared in The Adjudicator Edition 7 Winter-1991, the official publication of the Canadian Association of Dental Consultants. Penned by Dr. Edward Mazak of Windsor, Ontario, the opinion piece lists a number of factors contributing to dental costs. The Journal is grateful for permission to reprint.

DENTAL PLAN\$

Revenue Canada's annual analysis of income tax returns recently released, shows that self employed Physicians and Surgeons still earn the highest incomes, but Dentists are number two.

These are among findings reported in the new 347 page issue of Taxation Statistics, which looks at the 1988 tax year.

Annual Average Pre Tax Incomes:

- Physicians and Surgeons \$113,810.00
- Dentists \$94,666.00
- Lawyers \$91,142.00
- Accountants \$65,600.00
- Engineers and Architects \$46,292.00

To Dental Plan purchasers and the public, this illustrates what we already know. Dental treatment is costly to provide. The cost of dentistry is influenced (and not necessarily in this order) by:

- Powerful Dental Associations publishing Fee Guides with yearly increases and additional procedure codes.
- Strong unions negotiating for the utmost benefits at each contract.
- Some Benefit Consultants and Marketing Representatives while competing for commissions and bonuses marketing absurd plan\$.
- Some Practice Management Experts and Courses that mesmerize dentists to maximize practice incomes using dubious means.
- Income generating auxiliaries being reimbursed at dentist's fees.
- Treatment plans based on coverage rather than patient needs.
- Automatic 6 month recall "Prophy Mills"
- Unnecessary routine radiographs taken automatically by auxiliaries before the dentist even sees the patient.
- A lot more general practitioners, hygienists and specialists providing a lot more services.
- Greed and a "me" generation of graduates
- Some employers in order to attract employees for certain jobs offering extremely generous and liberal dental plans which are then exploited by unscrupulous dentists. Some government sponsored plans fall into this category.
- Some carriers accepting dental plans as "loss leaders" and not utilizing their expertise as is done in other areas of their business.
- Some licensing bodies not sending a strong enough message (and thereby deterrent) to dentists regarding fraud and professional misconduct.

All of the above influence the costs of Dental Plans and Dentistry. However, the major cause is the rapidly escalating overhead costs which are forcing dentists to charge more. The new techniques, improved materials and supplies and more stringent sterilization and infection control, plus the new GST on operating and equipment expenses all make the costs of providing dental services much higher than in the past.

Edward Mazak, DDS
Windsor, Ontario



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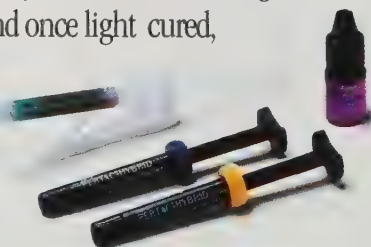
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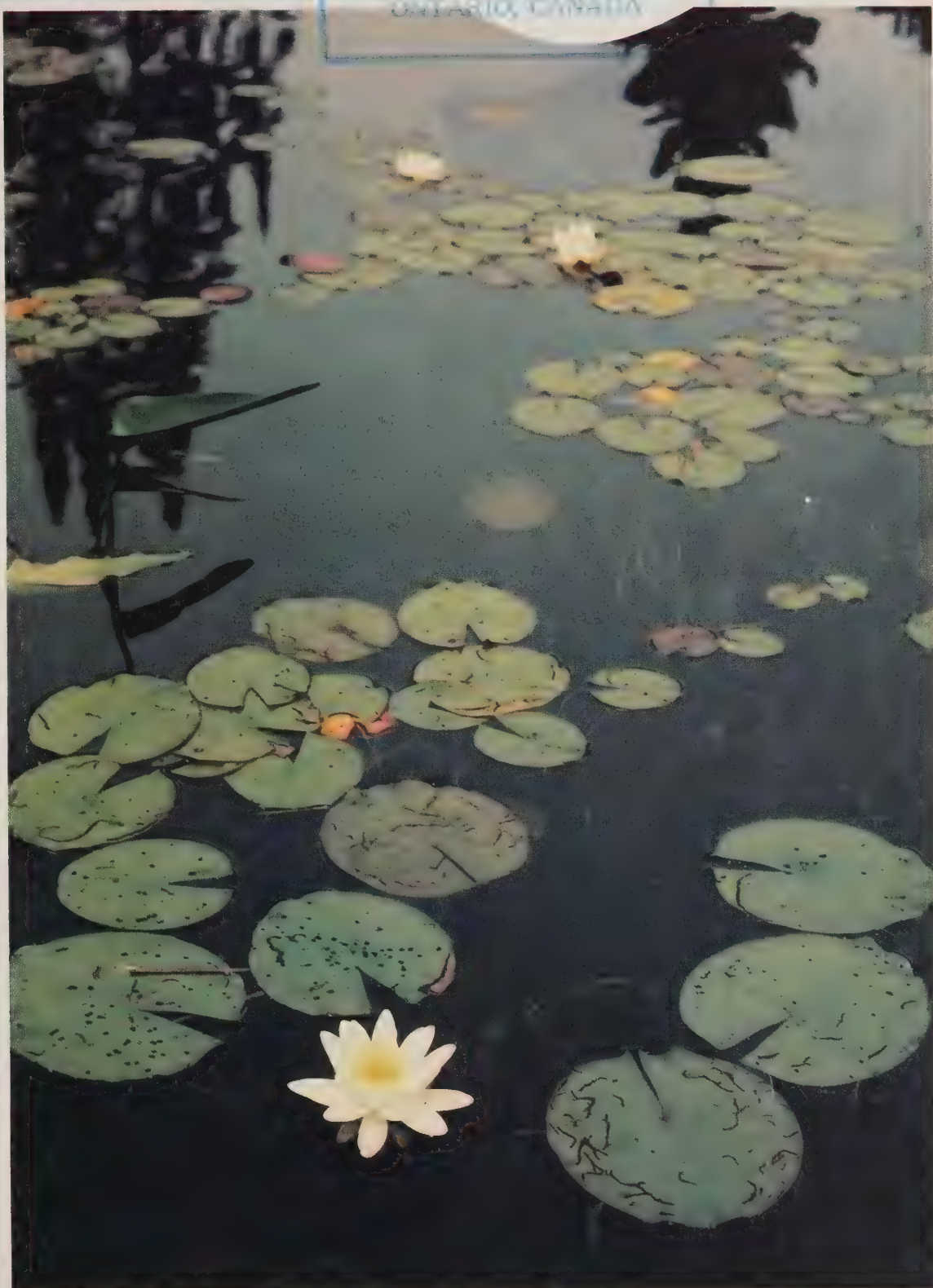
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The Canadian Dental Association serves the dental profession — and through the profession the Canadian public — as the authoritative national voice and resource for dentists.

The Journal of the Canadian Dental Association is published in both official languages except scientific articles which are published in the language in which they are received. Readers may request the Journal in the language of their choice.

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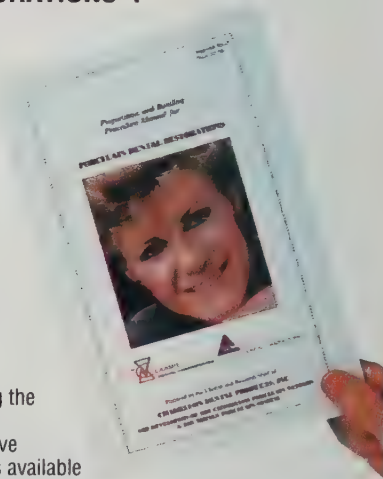


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Canadian
Dental
Association

L'Association
dentaire
canadienne

May 1991

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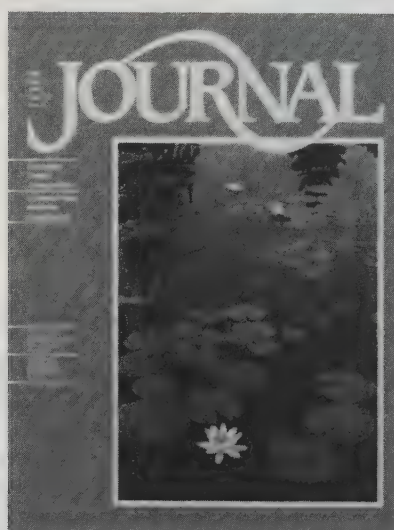
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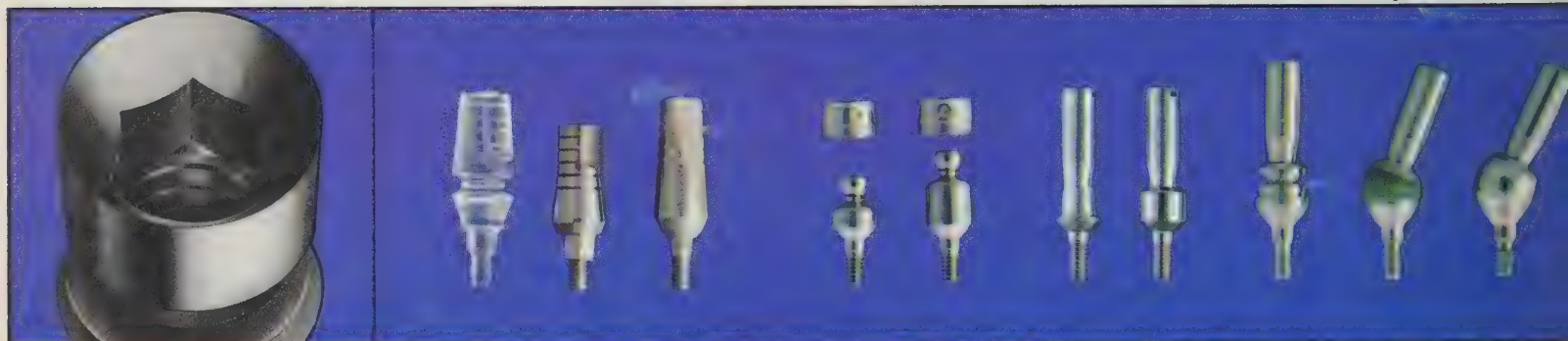
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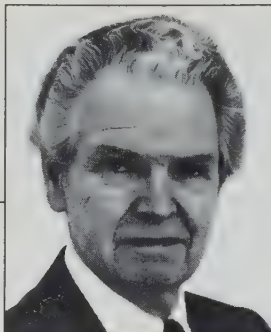
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GERIATRIC DENTISTRY Are We Moving Too Quickly?

Following considerable debate and revision, a resolution on Geriatric Dentistry was finally adopted by the Board of the Canadian Dental Association:

Whereas geriatric dentistry is gaining significance concurrent with the growth of the Canadian population and

Whereas insufficient attention has been given by the dental profession to this problem, and

Whereas many older citizens are chronically ill and handicapped,

Resolve that

- (1) The Dental Division of the Department of National Health and Welfare be asked to assist the dental divisions of the provincial departments of health in conducting surveys.
- (2) The aforementioned surveys should include information dealing with dental conditions of the aged.
- (3) On obtaining more factual information on the significance of the dental problems of the aged, consideration be given to the implications of the problem and what action should be taken to resolve it.
- (4) Faculties of dentistry be encouraged to present courses on the treatment of the aged.
- (5) Dental societies be urged to invite clinicians to discuss problems related to geriatric dentistry.
- (6) Dental societies be encouraged to develop programs related to this field.

This resolution is dated **July 1969**. Its preamble, presented by Chairman Dr. Keith W. Davey, made reference to "alarming facts" and urged prompt consideration and action.

(Continued next page)

Despite rapid escalation of the number and dental problems of the aged, Canadian dentistry has not progressed very far in twenty-two years. The CDA Committee responsible for Community and Institutional Dentistry is having difficulties developing a definition of Geriatric Dentistry.

Although some progress has been made in our Faculties of Dentistry, even the most optimistic cannot say that Geriatric Dentistry is given enough discussion and clinical time — certainly not enough to equip graduating dentists with the skills and confidence to address the dental problems of the aged. At last count there were only three dentists in all of Canada with any advanced training in the discipline.

Nor is Health and Welfare Canada without blame. A project called *Oral Health in Canada: Facing the Future*, invested two years of meetings/planning time, (and cost several hundred thousand dollars), only to be recently shelved with little explanation. A document from the abandoned project stated,

“While we have made significant progress in oral health over the last fifty years, some fundamental challenges remain. These include increasing prevention, reducing inequities in oral health and responding to the oral health concerns of an aging population.”

Neither can dental societies console themselves that more emphasis is being placed on Geriatric Dentistry. The *Journal* has a dentist friend who keeps statistics on all continuing education pamphlets mailed to his office. We are told that out of 110 Cont-Ed invitations received in 1990, only three concerned Geriatric Dentistry. A presentation in Quebec City next August by Dr. Kenneth Shay of Milwaukee, a highly respected authority on dentistry for the elderly, will be the first time the subject has been part of the CDA Convention program in several years.

No, Canadian dentistry is certainly not moving too quickly. But can we afford to wait another twenty-two years?

P. Ralph Crawford, BA, DMD

Editor: Journal of the Canadian Dental Association



My Vision of Dentistry

As a fourth year student in 1976, I dreamt with three of my classmates of building our own dental clinic. It was the era of megaprojects. We were planning to build a clinic in Laval (the second largest city in Quebec) with 16 operatories, a dental hygiene department, a radiology department, a business manager, etc. This entire project was based on our perceptions of quality patient services. At the time, we did not see that our plans were those for an industry, not a dental office. We were young, very dedicated to our work; thinking "bigger was better" for our future patients.

I spent the entire year organizing this project. As it happened, the project did not fly because one of us decided to specialize and it was impossible to do the same with only three dentists. When I think about it today, I consider myself lucky to have not been involved in such a project. The recession of 1982 could have put us out of business.

I started to practise as a solo practitioner in Laval in 1977. Because of my low overhead, I was able to spend a lot of time with my patients — to communicate with them. I practised the kind of dentistry I learned in school and my practice flourished.

Today when I analyze the situation of our new grads or confreres who are experiencing financial difficulties, I am really concerned about the future of dentistry.

To be able to practise professionally and ethically, you have to free your mind of any financial burden. When I look at the set-up of some of our confreres with their high overheads and stress levels, I am not sure that we are going in the right direction. Despite all the practice management seminars given by world renowned lecturers who tout the benefits of "more rooms, more staff, more marketing", I do not think that the majority of dentists would practise in such an environment. You may bring in more money but your stress level would increase and the fun you have practising dentistry could suffer. It may be fine for some but it certainly is not for everybody.

This is my vision of the future of dentistry: Certainly we will have to incorporate new technologies into our practice; computers, lasers, etc. are part of the dentistry of tomorrow. What should be different is our way of practising. It will be important to be closer to our patients, our staff, and ourselves. We will have to meet most of our patients' needs and consult less with specialists. We should continue to use good practice management techniques that enable us to lower our overheads and free up our minds.

(Continued next page)

President's Column

In my view, the future environment of a dental practice should ideally consist of two operating rooms with a dental assistant, a dental hygienist, and a secretary. This format is not the most financially optimal but in the long run, it is the most professionally viable. This does not mean that we cannot share space with a confrere; instead we will see all of our patients in a more relaxed, cosy, family-type atmosphere. In this way, we would face fewer emergencies in the future. We would be able to spend more time with each patient to discuss their dental health and health environment problems that affect them such as nutrition, mental disorders, etc.

It may seem unusual to you that someone with a MSc in Health Administration dreams of this kind of dental practice, but I think it is the only way a dentist will be able to practise in the future and still have fun doing it.

Less stress for him and for his patient. That is the option I would like to take.

Gilles Dubé, DMD, MSc, Admin. Santé
President of the Canadian Dental Association

News Update

CDA CONFERENCE, April 14-15, 1991

The Import of HIV and other infectious agents on Oral Health Care



*Mr. Joel Finlay,
Acting Director
General of the Federal
Centre for Aids.*

*The Centre was a
generous contributor
to the success of the
Conference.*



Opening Panel – “The Epidemiological Overview”. (Left to right)
Dr. Jim Brookfield, Conference Chairman; Dr. Joel Epstein; Dr. Rick
Mathias, Dr. John Hardie.



“Education and Licensing” – (Left to right) Dr. Henry Dick,
Dr. Don Cunningham, Dr. George Peacock.



“Ethical and Legal Perspective” – (Left to right) Dr. Gary Chiodo,
Dr. Minna Stein, Mr. Kingsley Butler.



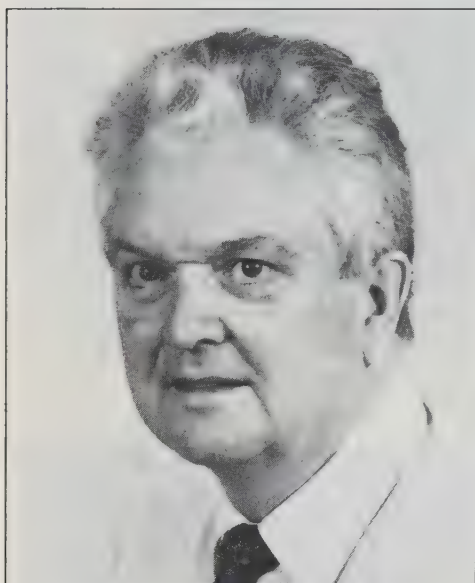
The Press Conference – (Left to right). Dr. John Hardie, Dr. Jim
Brookfield, Dr. Gilles Dubé.

*Dr. Dubé discusses
a point with a
reporter.*



Watch for full details in the June issue of the Journal.

Dr. Ian Bennett appointed Executive Director of Canadian Academy of Pediatric Dentistry

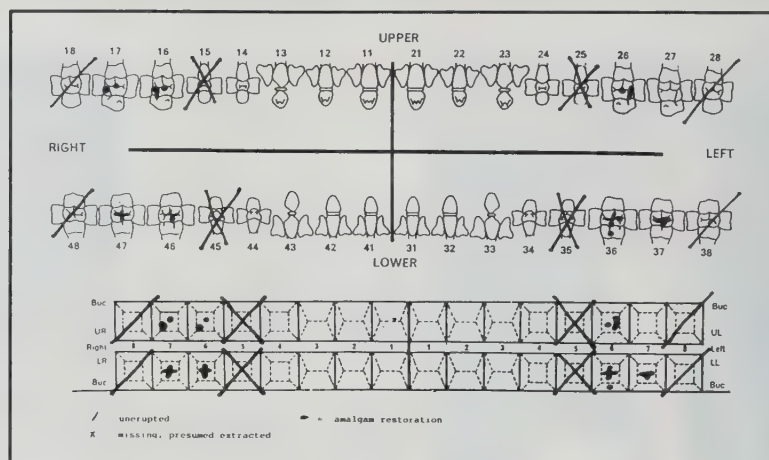


Dr. Ian Bennett

Dr. Ian Bennett was appointed Executive Director of the Canadian Academy of Pediatric Dentistry, effective January 1, 1991. Dr. Bennett was formerly Dean, New Jersey School of Dentistry and former Dean of the Faculty of Dentistry, Dalhousie University, Halifax. Currently, he is Professor of Pediatric Dentistry at Dalhousie and is Chairman of the Dental Aptitude Testing Committee of the Canadian Dental Association.

The current officers of the Canadian Academy of Pediatric Dentistry are:
President — Dr. Peter Pronych, Halifax, Nova Scotia
Past President — Dr. Arlie Dungy, Ottawa, Ontario
President-elect — Dr. Victor Legault, Montreal, Quebec
Secretary — Dr. Murray Diner, Montreal, Quebec
Treasurer — Dr. Stephane Swartz, Montreal, Quebec △

RCMP seek help to identify remains



The RCMP detachment in Ashern, Manitoba, request the assistance of dentists to identify human remains found near the small community of Faulkner, Manitoba, on August 17, 1990.

On the basis of the teeth, (see dental chart above), mandibular and maxillary morphology and cranial sutures, the remains are compatible with a Native

Indian or Inuit female aged 25-35. The mandibular first molars exhibit a dryopithecus five cuspid pattern, common with the second molars indicating Native origin.

Further information may be obtained from the NCO in Charge, RCMP, Box 400, Ashern, Manitoba, ROC OEO. Telephone (204) 768-2324. △

C E N S U S • 1 9 9 1 • R E C E N S E M E N T



June 4 Count Yourself In! ♦ Soyez du nombre! 4 juin

What are you doing on June 4, 1991? Whatever your plans are for the day, someone from every household in every village, town and city in Canada has an important task to complete: The 1991 Census questionnaire.

The Census is Canada's largest survey. Once every five years, it collects information on more than 26 million people in 10 million households. And its impact is far-reaching. Did you know that hospitals, bus routes and fire stations are located where they are because of the Census? Lots of companies use Census data to develop products, make sales, choose store or factory locations. And the Federal and Provincial governments discover many vital facts about the communities they are serving — facts that translate into funds allocated for health, education, and welfare plans.

You have a big role to play in the 1991 Census. The Canadian Dental Association and Statistics Canada ask you to become involved in promoting Census Day. The more people are aware of the Census and how it is used, the more successful the Census will be on June 4th. Here's how you can help spread the word to your patients;

- A tent card has been mailed to you with your Communiqué. Place it in a visible area (perhaps at the reception desk) to remind people to count themselves in on Census Day.
- If you print out computerized bills or statements, remind people in pre-Census mailouts to fill out their Census questionnaires.
- Put up posters in your public access areas. They can be obtained by contacting your nearest Statistics Canada Regional Office.
- Talk to your patients and your staff about the value of the Census. Reassure them that their privacy is guaranteed by law. Personal information is not shared with other government departments. Answers from each Census are combined to create statistical profiles.
- Tell patients that the Census takes only a few minutes of their time and this small effort can blossom into benefits for their community.

If you would like information on how to use Census information to support your business plans and decisions, call your nearest Statistics Canada office. After all, the Census is not only about you — it's for you!

Tribute Card Available from CFDE

The Canadian Fund for Dental Education (CFDE) is receiving more and more donations in honour of special occasions, such as anniversaries, birthdays, the opening of a new office, etc. In fact, there are so many occasions to honour with a donation that the CFDE Trustees has developed a 'Tribute Card'.

Next time you want to wish someone a speedy recovery, offer congratulations on achievement or express your appreciation for a favour — remember the 'CFDE Tribute Card'. All you have to do is send us the name and address of the person to be honoured and your contribution of \$10.00 or more. We'll forward a suitably worded card to him or her and send you a tax deductible receipt.

And most important of all, your gift will be used exclusively to promote ever-improving dental health services for all Canadians.

Gifts should be forwarded to:

The Canadian Fund for Dental Education
(CFDE)
1815 Alta Vista Drive,
Ottawa, Ontario, K1G 3Y6. Δ

CANADIAN FUND FOR DENTAL EDUCATION TRIBUTE CARDS

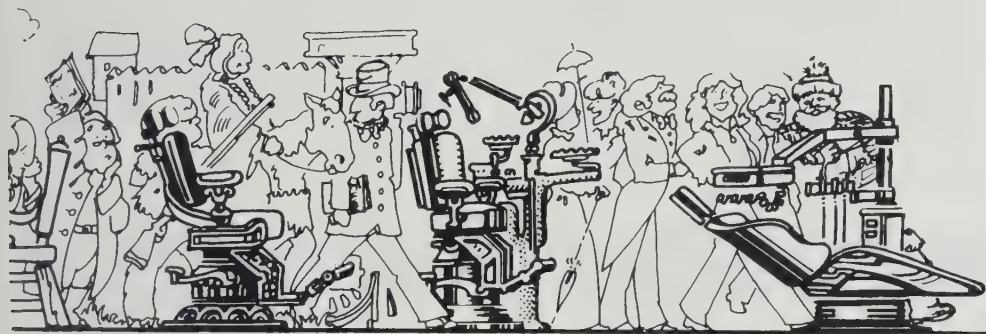


Remember that special occasion
with a tribute gift to the Fund.

CONTACT: 105-1815 ALTA VISTA DRIVE, OTTAWA, ONTARIO K1G 3Y6
TELEPHONE: 613-731-0493



Yesteryear in the Journal



50 Years Ago this Month. . .

- The American Association for the Advancement of Science compiled a list of collective dollars spent annually by middle class Americans on products and services. Dental services including tooth paste and mouth rinses averaged \$429,500,000. Cosmetics totalled

\$7,000,000, sports and games \$900,000,000 and veterinary bills for the family dog were \$601,100,000.

- The Canadian Dental Association was to apply to Parliament for incorporation under Dominion laws. The association, of which virtually all dentists in Canada are members, corresponds to such professional bodies as the Canadian Bar Association and the Canadian Medical Association.

- Arrangements were almost completed to grant commissions to a number of dental students in the Canadian Dental Corps upon graduation in the spring.
- British Columbia had 272 dentists licensed under the Dentistry Act as members of the College of Dental Surgeons. The list included 32 dentists in Victoria, 25 in the county of New Westminster, 152 in Vancouver, and 4 in North Vancouver. Δ

Did you know?

Economics are all Relevant

- In 1990 a Cadillac Seville cost 14.7 cents per kilometre to operate — including fuel, repairs and license
- An F-18 fighter plane costs \$6,000. per hour to fly
- A Big Mac costs 5.5 rubles in Moscow — more than a third of the average daily Russian wage.

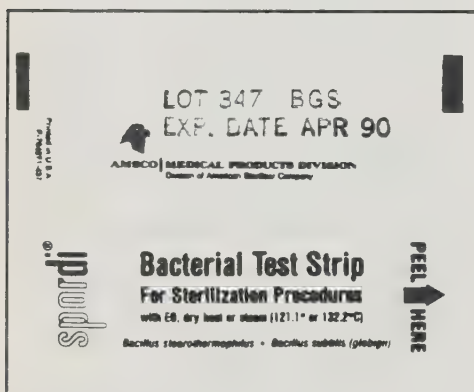


Here a Spore,
There
a Spore. . .

The CDA and the Department of Biology at the University of British Columbia Faculty of Dentistry have joined forces to offer dentists a chance to test whether their sterilizers are really working. Response to the recently organized Sterilizer Monitoring Service has been tremendous — an indication that Canadian dentists view infection control as a top priority.

Results of the first 406 spore tests indicated that 27 sterilizers (6.7%) were not operating effectively. Sterilizers which failed the initial spore test were retested and 29.1% failed a second time. All but one of the failures occurred in chemi-claves — the type of sterilizer most often used in dental offices.

Scientists from the Monitoring Service point out that contrary to popular belief, autoclave tape and the markings on the outside of autoclave bags do not imply that the contents are sterile. They are process indicators only and their purpose is to signify whether a package has been through a sterilizer. Only biological indicators which utilize bacterial spores provide proof of sterilization.



Bacterial test strips are sent to the U.B.C. where they are tested for live spore counts.

The biological indicator strip provided from the Monitoring Service utilizes spores from two bacterial species, *Bacillus stearothermophilus* and *Bacillus subtilis*. Each testing unit consists of two test strips: one is placed with a regular

Dentsply's Joint Venture Plant Open in the Soviet Union



Mr. Burton Borgelt, Dentsply Chairman & CEO; Professor Valery K. Leontiev, Chief Dental Officer of the USSR Ministry of Health, and Mr. Igor N. Denisov, USSR Minister of Health tour the STOMADENT factory in Kharkov.

Impressive ceremonies marked the recent official opening of a factory producing dental supplies for STOMADENT Dentsply's joint venture with the Soviet Union. The venture is the first of its kind in the dental industry and thus far, only the sixth US-Soviet joint venture to result in a successful plant operation.

The facility is located in Kharkov and is fully equipped with modern, state-of-the-art production equipment and quality control laboratories. Initial production consists of contemporary composite

restorative materials and accessories.

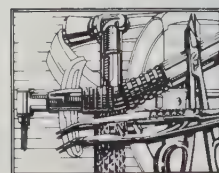
In a joint statement Mr. Burton Borgelt, Dentsply Chairman/Chief Executive Officer, and Igor N. Denisov, USSR Minister of Health, said "We are delighted that this plant opened ahead of schedule — in less than two years time from the formation of our historic joint venture. That this undertaking was so successful is a tribute to the tenacity and talent exhibited by a number of dedicated persons at all levels." △

cycle of instruments, and the other is retained for control purposes. Both strips are sent to the Monitoring Service in British Columbia and the dental office is notified immediately if a growth occurs. Two free retests are provided if a sterilizer fails.

CDA members can purchase six spore tests (to be used within an eight month period), for \$80 plus GST. Non-CDA members will be charged \$160 plus GST.

For further information or to obtain test strips, write to:

Sterilizer Monitoring Service
Department of Oral Biology
Faculty of Dentistry, U.B.C.
2199 Wesbrook Mall
Vancouver, B.C.
V6T 1Z7 △



Obituaries/Nécrologie

Boulet, Gerard : Diplômé de l'École de médecine dentaire de l'Université Laval en 1944, le Dr Boulet exerçait sa profession à Québec. Il était membre permanente de l'Association dentaire canadienne.

Braund, J.E. : Dr. Braund graduated from the University of Toronto in 1933. He practised dentistry at Coxwell and Gerrard Street for 54 years until he retired in 1987. He was a Life Member of the Canadian Dental Association.

Easter, L.J. : Dr. Easter was a graduate of the old College of Dentistry at the University of Toronto in 1926. He was a Life Member of the Canadian Dental Association.

Giguère, Émile : Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1922, le Dr Giguère exerçait sa profession à Montréal, Québec.

Huta, M.J. : Dr. Huta was a graduate of the Faculty of Dentistry at the University of Toronto in 1959. He practised in Etobicoke, Ontario.

Kenney, A.B. : Dr. Kenney died at the age of 97 in Vancouver. He graduated from the Faculty of Dentistry at the University of Toronto in 1915. He was an Honourary Member of the Canadian Dental Association.

Mason, H.W. : Dr. Mason graduated from the University of Toronto in 1938. He had retired to Cambridge, Ontario.

Neville, M.D. : Dr. Neville passed away at the age of 44 after a battle with cancer. Dr. Neville received his DMD from the University of Manitoba in 1969 and his MSc and specialty in children's dentistry in 1973. He was awarded the MDA's President's Award of Merit for his contribution to the Committee on the Children's Dental Health Plan. He was a staff member at the Faculty of Dentistry, University of Manitoba and at the Department of Surgery at the Health Sciences Centre.

Rosove, Jack : Dr. Rosove graduated from the Faculty of Dentistry at the University of Minnesota in 1933 and practised dentistry in the same location in Winnipeg for 50 years. He was a Life Member of the Winnipeg Dental Society, Manitoba Dental Association and the Canadian Dental Association.

Schatz, Sidney : Dr. Schatz was a graduate of the University of Toronto in 1953. He practised in Toronto, Ontario.

Simard, P.L. : Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1974, le Dr Simard était professeur titulaire de santé dentaire publique à l'Université Laval.

Sutherland, A.J. : Dr. Sutherland graduated from the University of Glasgow in Scotland in 1953. He practised his profession in Burlington, Ontario.

Toole, J.E. : Dr. Toole served with the armed forces in World War I. He saw action at Vimy Ridge and was wounded. He graduated from the Faculty of Dentistry at the University of Toronto in 1924 and practised in Winnipeg for 40 years.

Wyatt, J.L. : Dr. Wyatt graduated from the University of Alberta Faculty of Dentistry in 1930 and practised for many years in Medicine Hat. In 1963, he joined the National Health Service and became Regional Dental Director for BC and the Yukon. In 1976, the Canadian Dental Association awarded Dr. Wyatt Honourary Membership in recognition for outstanding service.

Correction

The Journal regrets a typographical error in reporting the death of Dr. Walker Shorthill in its April issue, page 253. Dr. Shorthill was in fact 67 years of age at the time of his passing, not 87.

CDA Retirement Savings Plan

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	March 31, 1991	February 28, 1991
Bond & Mortgage Fund	81.91508	81.07083
Common Stock Fund	16.96347	16.68901
Money Market Fund	55.25989	54.93825
Balanced Fund	32.03527	31.82842

G.I.C. Fund Term	*Interest rates as at	
	March 31, 1991	February 28, 1991
1 yr	9.35%	9.75%
2 yr	9.60%	9.90%
3 yr	9.60%	10.10%
4 yr	9.60%	10.10%
5 yr	9.60%	10.10%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

March 31, 1991	February 28, 1991
\$139,206,466.40	\$136,592,916.60

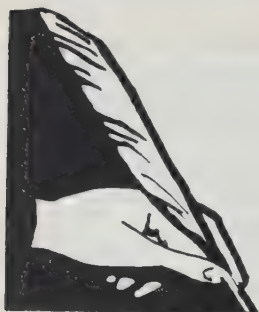
For further information:

Write:
CDSPI
Retirement Services Dept.
Suite 600
2 Lansing Square
Willowdale, Ontario
M2J 4Z3



or phone, toll-free:

Western and Atlantic Canada
and Ontario Area Code 807
only 1-800-268-5418
Quebec and Ontario, (except Area
Code 807) 1-800-268-3411
Metro Toronto Area 497-7117
fax number: 1-416-497-9257



Kudos to President's Column

I write to congratulate the President on the very fine President's Column which appeared in the February edition of the *CDA Journal*. He has expressed the view that many of us hold both eloquently and succinctly.

As you know, the problem being created by returning Canadian graduates of US schools is most acute in Ontario. I have written expressing similar comments to the Royal College of Dental Surgeons of Ontario as Dean of the Faculty of Dentistry, Univ. of Western Ont. and also as President of the Association of Canadian Faculties of Dentistry and Chairman of the Commission on Accreditation of the Canadian Dental Association. I sent copies of this correspondence to Brian Henderson (CDA Director of Professional Services — Education and Accreditation).

Thank you, Dr. Dubé, for your insight and support of the accreditation process as well as the Canadian Faculties of Dentistry.

Ralph I. Brooke
Dean



Editorial Impact

I found your November 1990 Editorial *Ethics — Just Words?* very interesting and took the liberty of plagiarising some of your ideas for use in my March 1991 Editorial.

Helmut Heydt, BDS (Witwatersrand)
Executive Director
Managing Editor: *Journal of the Dental Association of South Africa*




Statistics Canada **Statistique Canada**

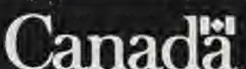
JUNE 4 JUIN

**Count
Yourself
In!**

**Soyez
du
nombre!**



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La bibliothèque de l'ACD a également préparé des articles sur les thèmes suivants :

Le SIDA — manifestations orales

Le SIDA — considérations éthiques

Pour de plus amples renseignements sur ces articles et d'autres, veuillez communiquer avec Martha Vaughan, bibliothécaire.

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One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (G.S.T. and, Ontario residents, please include 8% sales tax.)

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Book Reviews

ESSENTIALS OF PERIODONTICS 4th Edition

by Philip M. Hoag and
Elizabeth A. Pawlak

1990, C.V. Mosby Co., St. Louis
284 pages, B&W photos & illustrations

This text aims to provide a concise overview of the basic principles and techniques of periodontics. The authors claim it has been written primarily for dental hygiene and assisting students, though it may be valuable as well for continuing education programs.

The text is divided into fourteen chapters, followed by a very useful glossary of periodontal terminology. The chapters include topics such as anatomy, etiology, classification, examination, diagnosis, prognosis, treatment planning and patient management. Each periodontal disease process is discussed on the basis of ten key factors, a well-designed list ranging from definition and clinical characteristics to prevention.

The initial chapters describing information on anatomy and etiology were thorough and well-organized, though information on immune mechanisms tended to be misleading. Chapters discussing individual periodontal disease entities were quite complete, although epidemiologic claims regarding prevalence were poorly referenced.

Discussion of treatment protocols in later chapters divided therapy into three phases, a fairly accurate description involving initial, corrective and maintenance phases.

Following chapters described significant periodontal issues including occlusion, recession and acute conditions in a thorough, well-organized format.

Description of the periodontal exam included an excellent medical history provided by the American Dental Association.

A chapter devoted to plaque control techniques included useful information on teaching and motivational techniques. The authors' interest in compliance was very evident throughout this chapter.

The concluding chapters provided descriptions of instruments and techniques used in current periodontal therapy, both sanitive and surgical. The chapter on sanitive therapy was quite complete, whereas the chapter describing surgical therapy was obviously intended

as an introduction.

The glossary included at the end of the text defined useful terminology which ultimately improved the readability of the text.

In general, this text provides a well-organized overview of periodontology. The arrangement of chapters is logical and lucid, and information included is fairly complete. Shortcomings include a poorly referenced bibliography, with most cited references prior to 1985. Similarly, the referenced texts are primarily North American, whereas Scandinavian contributions are largely ignored.

This text provides a very readable, well-illustrated, introduction to periodontics for the dental auxiliary. Though referencing is inadequate and dated, a surprisingly well-rounded volume of information is made available by *Essentials of Periodontics*.

This book was reviewed by:
Carolyn A. Mason, DDS, Dip Perio, MRCD
Clinical Lecturer, Division of Periodontics
University of Western Ontario

ATLAS OF PORCELAIN RESTORATIONS

by Harry Denissen, et al.

1990, Piccin Nuova Libreria, S.P.A.,
Padua, Italy
94 pages, color illustrations.

An 'Atlas' should be a photographic account of diagnosis and treatment methodologies. From the title "Atlas of Porcelain Restorations", we should expect an organized approach to the use of porcelain restorations with informative, clear photographs and detailed accompanying text. Although the title of this book implies a photographic review of techniques in the use of porcelain restorations in dentistry, it falls short both in photographic quality and technical information.

The authors have selected to discuss by chapter, porcelain veneers, partial crowns, porcelain crowns on both vital and non-vital teeth, all-porcelain bridges, and porcelain-fused-to-metal bridges both in a clinical and laboratory context.

Porcelain veneers cover the first 23 pages. The authors fail to provide a step-by-step detailing of the procedures either photographically or in the text. The material is treated in a cursory manner and, therefore, problems such as the bonding of veneers when on a dentin

margin are not discussed.

In the second part, porcelain partial crowns, tooth preparation and bonding are not described in sufficient detail. It seems that the authors lacked enough cases to fully illustrate this chapter. The section on treatment of non-vital teeth with all porcelain restorations mainly details post and core preparation, with very little information given about the porcelain crowns, i.e. in terms of margins. Many of the photographs do not add information but appear to be used as 'filler'.

Although the use of all-porcelain bridges remains controversial, the authors do not discuss the pros and cons of such treatment. They illustrate techniques whereby dentin surfaces at the gingival margins are first restored using composite resin and then the composite resin is subsequently used to marginate the veneer preparation. They do not document clinical studies of such techniques, which certainly reduces their credibility. It is interesting to note that the figure text on p. 53 fig. 126, 127 suggests a good gingival response. However, on close scrutiny of an overexposed photograph, there is ample evidence that a bulky embrasure has caused tissue irritation.

The last chapter on Porcelain-fused-to-metal restorations again follows the pattern of the others; the subject matter is treated in a cursory manner accompanied by poor photographic material.

The photographic material is poor, inadequate and not well supported by the text. The materials described are mainly from German manufacturers and may not be available in Canada or the USA. This book does not give any meaningful information that might guide the practitioner to providing a better aesthetic restoration.

This book was reviewed by:
Dr. Peter Apse
Assistant Professor (Prosthodontics)
University of Toronto



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The DAP Advisor

The DAP Advisor offers information, ideas and advice to improve dentist/patient communication, raise awareness about good dental health, and help your practice become busier.

It doesn't really matter which member of your dental team records the message on your answering machine, although patients may feel more comfortable with one from you or your receptionist. Whoever records it, the message should sound friendly and reassuring. Here are some tips for recording it:

- Write down what you want to say.
- Practice reading the message a few times before recording it.
- Smile when recording — the message will sound warmer.
- Speak slowly, clearly, and naturally.
- Play back the message and pretend you are on the receiving end. Rerecord the message if you think it can be improved.

Answering Machine Etiquette: Tips for Effective Message Taking

In an ideal world, there would always be someone to receive calls from patients, no matter what hour of the day or night they called. In the real world, however, it is impractical if not impossible to have a warm body manning the phone at all hours. Fortunately, the technology exists to take patients' calls when no one is in the office — the telephone answering machine.

The message on your telephone answering machine represents your practice to your patients after hours. If the message is effective, it gives patients the means to contact you so appropriate action can be taken. In the case of an emergency, for example, the message can direct the patient to contact you at home. At the same time, the message can reinforce the idea that yours is a caring and approachable practice, one in which patients can be assured of receiving attention despite the hour of their phone call.

To help ensure that your answering machine is operating at peak effectiveness, here are a few suggestions:

- **Obtain the best technology.**

The best technology is not necessarily the most expensive. Rather, it is the technology that best meets your needs. For instance, you might want an answering machine that, once plugged in, is on all the time. That way, no one has to remember to activate it. There are other features that you may find appealing — like a microchip that records a backup of messages should a power failure erase the originals, or a mechanism for retrieving messages from your home phone or another phone.

Whatever bells and whistles you select, make sure that the message you record sounds as true-to-life as possible. A message that simulates the natural sound of the human voice is generally much more appealing than one which sounds as if it were recorded underwater, or in an echo chamber.

- **Keep the message succinct yet friendly.**

These days, answering machines have become so ubiquitous that most people are conversant with them. Still, some people may be a little confused by them, particularly if agitated by a real or perceived emergency. The purpose of your taped message is to allow patients to leave a message as quickly as they can, and to make it easy for them to do so. That means setting the machine to answer after no more than four rings, keeping the message brief, and carefully instructing the patient on what to do next. All the while, your message should sound friendly and reassuring. For example:

Thank you for calling Dr. Cooper's office. Our office is closed for the weekend, and will reopen Monday at 9 a.m. When you hear the tone, please leave your name, a short message, and the number where you can be reached Monday morning. In case of emergency, please call Dr. Cooper at 555-6782. That's 555-6782. Thank you, and have a good weekend.

For a number of reasons, this message is particularly effective. First, it identifies your practice so the patient knows immediately that the correct number has been reached. Next, it tells the patient when office hours are to be resumed, and provides a number in case of emergency; this emergency number is repeated in case the patient doesn't get it the first time. Finally, it thanks the patient and concludes on a warm and pleasant note.

- **Give the patient enough time to leave a message.**

Most patients will probably need less than 30 seconds to leave a message. There may be instances, however, when more time is required. Make sure that your answering machine allows patients at least 60 seconds before cutting them off.

- **Change the message to suit the occasion.**

Obviously, your weekday message will differ slightly from your weekend message. There are other occasions, though, when you may have to alter your recording. For example, your message should let patients know when you are away — either on vacation or at a conference — and instruct them on how to proceed if they want to make or change an appointment, and what to do should an emergency arise. The point is to let the patient know that, even though you are gone, you are concerned about their needs and have provided for them.

- **Follow through.**

The best technology and most reassuring words will be meaningless if you fail to act upon the patient's message. That doesn't mean that you have to be at the patient's beck and call at all times, but the patient's concerns should be acknowledged and resolved as soon as it is reasonably possible. In the case of a non-emergency, the matter should be resolved the next working day. In the case of an emergency, it should be attended to as you see fit.



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CDSPI Reports

CDSPI: Structured for service

Since 1959, Canadian Dental Service Plans Inc. (CDSPI) has provided an ever-expanding range of products and services to the dental profession. For the benefit of those dentists who may not know how CDSPI is organized, this article will briefly profile the inner structure of the Corporation.

CDSPI functions as the Council on Insurance and Investment of the Canadian Dental Association. It also functions as a separate, non-profit corporate entity.

The Board of Directors

CDSPI's Board of Directors provide a vehicle for the flow of information to and from the Corporate Members — the Canadian Dental Association and Provincial Associations — through their representation on this Board. The Directors are appointed annually by the Corporate Members. They oversee the operation of a company which is owned by the dental profession. Observers to the Board meetings are appointed by those Corporate Members not having a Director.

The number of Directors and Observers is as follows:

Area	Directors	Observers
CDA	2	0
British Columbia	1	0
Saskatchewan/Manitoba	1	1
Ontario	2	0
Atlantic Canada	1	3

The Board of Directors of CDSPI, functioning as the Council on Insurance and Investment of the CDA, currently have a mandate to:

1. Recommend to the CDA Executive Council, the kinds of insurance that are desirable for the membership;
2. Survey the insurance market to determine costs, terms and conditions of available coverages;
3. Negotiate and recommend for approval to the CDA Executive Council, the costs, terms and conditions of contracts with the chosen carriers;

4. Periodically review the insurance contracts in order to determine the suitability of the contracts and the possibility of improved terms and/or more economical terms and to assess the proposals of competing carriers;
5. Recommend to the CDA Executive Council the time and manner of distribution of surplus or reserve funds;
6. Advise and review Association sponsored pension and retirement saving plans;
7. Report on all actions to the Board of Governors of the Canadian Dental Association.

In addition, functioning as a separate corporate entity, the CDSPI Board of Directors oversee the company's involvement in the areas of Retirement Planning Services, the RRIF and Annuity Information Service, and DOMS™, CDSPI's Dental Office Management System.

The Board of Directors of CDSPI has the ultimate responsibility for the on-going operations of CDSPI and are charged with the task of carrying out the above responsibilities.

The Board of Directors of CDSPI is committed to representing Canada's dental profession, through a corporation which is dedicated to the special and unique requirements of this profession.

The Management Committee

The Board of Directors appoints a Management Committee of three dentists. Currently they are Dr. Melvin D. Charendoff, President; Dr. Rod L. Moran, Treasurer and Dr. James N. Wright, Corporate Secretary. The Management Committee controls and supervises the day-to-day operations and management of CDSPI and reports to the Board of Directors. Although responsible for day-to-day operations, the Management Committee is subject to the direction of the Board of Directors for general administration and operations of the Corporation. An Executive Vice-President, responsible for the

on-going operations of CDSPI, reports to the Management Committee.

The major responsibilities of the Management Committee involve the areas of finance, review and negotiations, planning, professional interface, reporting and organizing. The Management Committee meets regularly with the Executive Vice-President and as required, with professional consultants who have expertise outside the immediate capabilities of CDSPI staff to provide the highest quality of advice and service to the dental profession.

Each member of the Management Committee must be able to commit considerable time and effort to provide leadership, to be attuned to the needs of the profession and be knowledgeable about corporate management, insurance, retirement savings plans and other product areas of CDSPI.

We hope that this article has given you a greater overall picture of the internal workings of CDSPI — a corporation made up of a group of dedicated professionals working for you.

In the next issue of the *CDA Journal*, we will present part two of our series on CDSPI — your service organization.

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CDA CONVENTION - QUEBEC 1991

CONVENTION UPDATE

Convention Hotels: Anticipating Your Needs



One of the loveliest characteristics about Quebec City is the proximity factor: everything is within walking distance. To reinforce this attribute, CDA Conventions has selected four hotels, set in the heart of the city, to serve as the 1991 Convention hotels.

The 600-room **Quebec Hilton** has a lot to offer a convention organizer as well as his guests. The Hilton was built on

top of a shopping mall and the Quebec Convention Center, the latter being the location of the CDA's Exhibit Hall and main registration area. The Hilton is one of two 'headquarter hotels' and as such it will house about half of the lecture program on its convention level. In addition, both the Monday evening Gala (*Soirée Charme et Chapeau*) and the Tuesday evening "*Soirée Tropicale*" will be held here. Special functions hosted by CDSPI, the International College of Dentists (ICD) and the Association of Prosthodontists of Canada will also be held at the Hilton.

Some of the facilities offered at the Quebec Hilton include: Le Croquembrèche restaurant serving French cuisine and Le Caucus family dining room. In addition the Hilton offers its guests in-room movies. It also has a swimming pool and a health club.

The **Hôtel des Gouverneurs** (Place Hauteville) stands proudly at the doorstep of Old Quebec. Facing Parliament Hill, it is also linked by underground walkway to the city's Convention Center. It too, will serve as one of the convention 'headquarter hotels' and about half of the convention's lecture program will be held on its main floor. It's a 3-minute walk (outside) from the Convention Center but also offers direct access to it and Place Quebec, a shopping mall with fashionable boutiques. The hotel will draw its \$8.5-million renovations to a close at the end of May just in time for the convention. As a result all 377 guestrooms have been transformed and the hotel offers its business class special rooms and services. Both the Canadian Dental Assistants' Association (CDAA) and the Canadian Dental Hygienists' Association (CDHA) will use this hotel for special functions and meetings. In addition the Academy of Dentistry International, the Canadian Academy of Pediatric Dentistry and the Canadian Society of Public Health Dentists will host meetings here. Some of the hotel's facilities include: Le Vignoble, offering lavish buffets and an exquisite menu, l'Imprévu piano-bar (considered the hotels focal point of activities), a

well-equipped health club and a swimming pool.

The **Loews Le Concorde** is a short 15-minute walk from the Quebec Convention Center. This property has been in the midst of a face-lift as well. The project began in late 1987 when the Loews Corporation, which has always managed the hotel, bought the property and \$9-million later have completely renovated all 422 rooms. Stepping out of Le Concorde, guests can choose from the lively bistros, cafés, and bars along Grand Allée or enjoy a historical walk by the Plains of Abraham. Some of the facilities the Loews offers its guests include: L'Astral, the revolving rooftop restaurant, a health club and sauna (located on the fourth floor and equipped with a heated swimming pool and other amenities). The **Château Frontenac** is also about a 15-minute walk from the Quebec Convention Center. It will be the Headquarter Hotel for the Royal College of Dentists of Canada (RCDC) and host some Canadian Dental Association Board functions as well. Perched on a hilltop overlooking the St. Lawrence, its location will suit any visitor. Visitors can stroll along the Château's boardwalk, promenade des gouverneurs, to the Citadelle or take a short jaunt to the steps of Champlain (lower town) in Vieux Québec (Old Quebec). The Château Frontenac is in the midst of a 50-million renovation program which began in 1987. To date over 500 of the rooms have been renovated.

A great deal of time and effort has been made to set aside room blocks in these hotels for CDA Convention delegates and we strongly recommend you use these hotels during your stay. Using the convention hotels will help us to plan better conventions for you in the future. Furthermore, these hotels provide convention meeting rooms at reduced costs, a benefit which is passed on to the delegates (reasonable convention fees). And, if you think these rooms cost a little more, perhaps you are right, but what the heck - splurge a little - you deserve it! To reserve your accommodations in one of the four selected convention hotels simply complete the Hotel Reservation Form that follows and forward it with your pre-registration form to CDA Conventions. If you have any questions regarding the selected hotels or convention details please call Janice or Toni at 1-800-267-6364 (East) or 1-800-267-6354. It is our pleasure to serve you.

Michel Jahjah, D.D.S.
General Chairman
CDA Conventions

CDA CONVENTION - QUEBEC 1991

PRE-CONVENTION PROGRAM - LIMITED ATTENDANCE**

SIMULTANEOUS
TRANSLATION

GORDON J. CHRISTENSEN, D.D.S.,
M.S.D., Ph.D.
Provo, Utah



SATURDAY, AUGUST 24

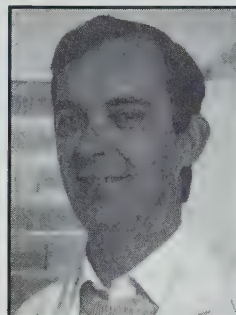
"New Aspects of Dentistry - 1991"

This program is designed to update practitioners in many of the new and useful aspects of dentistry. The following subjects are included:

- * Posterior Tooth Restorations - A comparison and clinical critique of tooth colored inlays, onlays and class 2 composites with amalgam and cast gold.
- * Fixed Prosthodontic Advances - New impression materials, accurate interocclusal records and a comparison of new cements.
- * Preventive Resin Restorations - Making class 2 type resin serve in "sealant" indications with long wear, high retention potential.
- * New Resins - Selection of the most acceptable restorative resin for your practice.
- * Dentin Adhesion - A candid look at current products claiming bond to dentin.
- * Bases and Liners - A comparison of the many new types of bases available, including traditional glass ionomer, resin and light cured glass ionomer.

About the clinician:

Dr. Christensen is founder and Co-Director with Dr. Rella P. Christensen of Clinical Research Associates (CRA), which conducts research on dental materials, techniques, devices and new concepts in dentistry. Dr. Christensen is founder and Director of Practical Clinical Courses, established in 1981 as a Career Development Program for dentistry. Currently he participates on the post-graduate faculties of many dental schools and is an Adjunct Professor at Brigham Young University and a Clinical Professor at the University of Utah.



TORSTEN JEMT, D.D.S., PH.D.
Gothenburg, Sweden

SATURDAY, AUGUST 24 & SUNDAY, AUGUST 25

HANDS-ON COURSE

"Basic Clinical Prosthetic Training Course on Osseointegrated Implants"

This course is designed to give prosthodontists and general practitioners knowledge about the prosthetic procedures of the Branemark System.

Topics to be addressed will include:

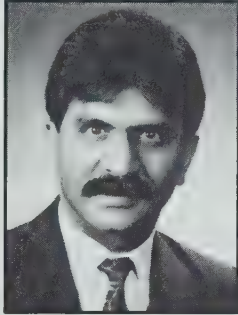
- * Introduction and review of clinical and physiological problems associated with edentulism and partial edentulism.
- * Presentation of conventional treatment concepts including comments on other implant systems.
- * Review of the scientific background of the Branemark system including biological considerations, biomechanical aspects and technical engineering aspects.
- * Brief overview of surgical procedures and presentation of surgical aspects of significance for prosthetic rehabilitation.
- * Prosthetic treatment planning, patient selection, indications and contraindications.
- * A detailed presentation of prosthetic, clinical and technical aspects covering various techniques and the use of different materials.
- * Hands-on training that includes presentation of components, instruments and the different steps involved in the clinical treatment sequence.
- * Presentation of patients in various stages of treatment including completed patients.
- * Discussion of possible complications and how to handle them.
- * Discussion of patient control and maintenance program including radiographical technique and computer possibilities in long term patient follow-up.

About the clinician:

Dr. Jemt obtained his D.D.S. in 1975 and specialized in prosthodontics in 1982. His Ph.D. thesis was defended at the University of Gothenburg in 1984. In 1988 he was made Associate Professor in Prosthodontics. Since 1986 he has been Associate Head of the Branemark Clinic. Dr. Jemt has presented more than 100 lectures to professional audiences and is the author of over 30 scientific publications. He is currently involved in research on single tooth replacements.

CDA CONVENTION - QUEBEC 1991

PRE-CONVENTION PROGRAM - LIMITED ATTENDANCE**



IMTIAZ MANJI, B.Sc.
Vancouver, B.C.

AND



TOM SNYDER, D.M.D., M.B.A.
Cedar Knolls, N.J.

SATURDAY, AUGUST 24

HANDS-ON COURSE

"The First Step to High Tech"

Each participant will begin the seminar with an unassembled computer in front of them. Working from the ground up, Mr. Manji and Dr. Snyder will explain computer technology in straight-forward, non-technical terms and guide the participant through assembly of their own computer.

Once the computers have been assembled, they will be powered up and Mr. Manji and Dr. Snyder will continue their discussion about popular computer programs and dental practice management software.

As a participant, you will have an opportunity to see each of the programs discussed - from MS-DOS and Lotus 1-2-3 to sophisticated dental software with which you can record patient information and bill dental procedures. The seminar is assisted by several experienced computer users so everyone will have plenty of opportunity to get their questions answered.

Imtiaz Manji is President of ExperDent Consultants Inc. and founder of Exan Technologies Inc. Mr. Manji travels extensively to deliver his unique perspective on high-tech, high-touch practice management to Canadian dentists. He has a quarterly column "Practicing for Success" in which he reveals how his down-to-earth approach to technology has assisted many Canadian dentists to attain tremendous increases in productivity and financial stability.

SUNDAY, AUGUST 25

"Managing for Financial Success"

This seminar will show you the steps you need to take to effectively manage your practice's growth and achieve personal and financial independence. Unlocking the wealth of your practice and translating it into growth and success can only be accomplished through strategic financial management and practice planning.

As a participant you will learn the critical indicators of a healthy practice, how to collect and analyze data to measure the health of your practice, and how to use planning tools like spreadsheets and financial models to simplify decision-making. Analyzing your practice on a monthly basis in this manner will reveal hidden opportunities for success in retirement planning, practice profitability, practice value, staff retention, patient flow and productivity. In addition, you will learn methods to involve your team in the success of the practice through profit-sharing, bonus structures and fringe benefits.

About the clinicians:

Dr. Thomas Snyder is Director of Professional Services for Sarantos & Company, a financial and practice advisory firm serving the healthcare professions, located in Cedar Knolls, New Jersey. He is a graduate of the University of Pennsylvania School of Dental Medicine as well as a graduate of the Wharton Graduate School of Business. Dr. Snyder was a senior partner in his own nationally known dental management and computer consulting firm prior to joining Sarantos & Company Inc.

CDA CONVENTION - QUEBEC 1991

PRELIMINARY PROGRAM

MONDAY, AUGUST 26

Dennis Smith ***, D.D.S., M.Sc., Ph.D., D.Sc.

Toronto, Ontario

"Biomaterials & Biocompatibility: A Current Perspective"

Edwin Yen, D.D.S.

Winnipeg, Manitoba

"Orthodontic Advances - Biological Solutions"

Léo Pelletier *, D.M.D., MRCD

Montreal, Quebec

"Classification of Periodontal Disease"

John Young, D.D.S., M.Sc.

San Antonio, Texas

"Dental Office Lighting and Design"

"Ergonomic Factors in Dental Equipment and Asepsis in the Dental Office"

Kenneth Shay, D.D.S., M.S.

Milwaukee, Wisconsin

"Guidelines for Restoring the Aged Dentition"

"Dental Management of the Frail Older Patient: The Dentist as a Member of the Geriatric Health Care Team"

Barbara Steinberg, D.D.S.

Pittsburgh, Pennsylvania

"Medical Considerations for the Female Patient: From Puberty to Menopause"

Philip Molloy, D.M.D.

Boston, Massachusetts

"Endodontic First Aid"

Domenic Morielli *, D.D.S.

Quebec, Quebec

"Surgical Risks in General Practice"

Robert Samp ***, M.D.

Madison, Wisconsin

"Stress: Living In, With & In Spite of It"

Olga Skica, D.D.S., Cert. perio.

Lorne Wiseman, D.D.S., Dip. perio.

Montreal, Quebec

Periodontics into the 90's: Regeneration of the Lost Attachment Apparatus

Anita Jupp

Toronto, Ontario

Practice Management - "Ingredients for Success"

Gérard Bouger *, D.M.D., M.B.A.

Montreal, Quebec

"Marketing your Dental Practice"

TUESDAY, AUGUST 27

Mark Sarner, M.A.

Toronto, Ontario

"New and Improved: The Canadian Dental Consumer in the 1990's"

Barbara Steinberg, D.D.S.

Pittsburgh, Pennsylvania

"A Team Approach to Treating the Dental Patient with Medical Problems"

Philip Molloy, D.M.D.

Boston, Massachusetts

"Exploring Periapical Surgical Approaches"

Gilles Gauthier *, D.M.D., M.S.E.

Montreal, Quebec

"Removable Partial Dentures"

Joanne LaMantia, B.A.

Toronto, Ontario

"Computers in the Dental Practice"

Sol Silverman Jr. ***, MA., D.D.S.

San Francisco, California

"Update on AIDS, HIV Infection and Dentistry"

Note: * = French presentation

*** = simultaneous translation

CDA CONVENTION - QUEBEC 1991

PRELIMINARY PROGRAM

WEDNESDAY, AUGUST 28 (AM ONLY)

Laval University *

Quebec, Quebec

Dental Research - Update

Salam Sakkal *, D.M.D., M.S.

Montreal, Quebec

"Endodontics for the General Practitioner"

Charles Blair, D.D.S.

Charlotte, North Carolina

"Controlling Practice Overhead"

Sylvie Morin *, D.M.D., M.S.

Quebec, Quebec

"Posterior Teeth Restoration in Surgical Dentistry:
Review of Materials and Techniques"

Peter Guevera, D.M.D., F.A.C.D.

Pittsburgh, Pennsylvania

"How to Get the Best Clinical and Laboratory Results
from all Light Activated Material Systems"

Dennis Smith, D.D.S., M.Sc., Ph.D., D.Sc.

Toronto, Ontario

"Update on Bonding and Cements"

Robert Samp, M.D.

Madison, Wisconsin

"Survival Strategies for Today's People"

Marilyn Ciano, B.A., M.A.

Buffalo, New York

"Leadership & Volunteerism"

Sebastian Ciano, D.D.S.

Buffalo, New York

"Dentotherapeutics"

"Perio-chemotherapeutics" ***

TABLE CLINICS

Sol Silverman Jr. M.A., D.D.S.

San Francisco, California

"Update on Oral Cancer and Premalignant Lesions"

Peter Guevera, D.M.D., F.A.C.D.

Pittsburgh, Pennsylvania

"New Materials, New Techniques in Prosthodontics for
Family Dental Practice"

Charles Blair, D.D.S.

Charlotte, North Carolina

"Dental Practice Transitions"

Hélène Lemay *, D.D.S., M.Sc

Anne Charbonneau *, D.M.D.

Montreal, Quebec

"Local and Electrical Anaesthetics"



Panoramic view of old Quebec.

Note: * = French presentation

*** = simultaneous translation

CDA CONVENTION - QUEBEC 1991

SCIENTIFIC PROGRAM HIGHLIGHTS

LÉO PELLETIER *, D.M.D., MRCD

Montreal, Quebec

"Classification of Periodontal Disease"

This presentation will focus on different aspects of periodontal disease including gingivitis and periodontitis in youths, adolescents and adults.

Topics will include: a review of the clinical characteristics of periodontal disease, discussion of case studies, discussion of the detached muco-gingival graft and a review of indications and techniques in relation to muco-gingival problems, prosthodontic treatment, and orthodontic treatment.

OLGA SKICA, D.D.S., Cert. perio.

LORNE WISEMAN, D.D.S. Dip. perio.

Montreal, Quebec

"Periodontics into the 90's: Regeneration of the Lost Attachment Apparatus"

The treatment of the periodontal patient has, for many years, included the recognition, surgical or non-surgical therapy, and maintenance of the debilitated dentition. Many treatments stopped the progression of further disease, however, they did not regenerate or replace those components of the attached apparatus which had been lost or destroyed.

More recently however, significant advances in periodontal and basic science research have translated into clinical treatments which can offer predictable "regeneration" of the lost periodontal attachment apparatus.

Topics will include: mucogingival root coverage procedures, connective tissue reattachment, bone grafting with or without the use of guided tissue regeneration, where new bone, cementum and aligned periodontal ligament may be regenerated.

ANITA JUPP

Toronto, Ontario

"Practice Management - Ingredients for Success"

Build upon your present achievements with more communication and organization. Doctors and team can reach potential they never knew existed. Appreciation will enhance attitudes, inspire, motivate and increase productivity for practice success.

Topics will include: phases of patient communication, reducing 'no shows', the pending appointment systems, recare systems, purging records effectively and staff meetings that motivate.

GILLES GAUTHIER *, D.M.D., M.S.E.

Montreal, Quebec

"Removable Partial Dentures"

This course is designed for the general practitioner. A review of the basic principles of partial denture design and their clinical applications will be presented.

Topics will include: the implications of position, mobility and restoration of natural teeth on the design of removable partial dentures, the presentation of clinical situations to illustrate problems with respect to the Kennedy-Applegate classification system including metallic or acrylic occlusal coverage, attachments, swing-locks and closed occlusal vertical dimensions.

SALAM SAKKAL *, D.M.D., M.S.

Montreal, Quebec

"Endodontics for the General Practitioner"

Endodontics is of great importance in the daily practice of the general dentist. A general review of endodontics will be presented.

Topics will include: curved canal preparation, the most recent filling techniques (Ultrafil, Thermafil, etc.), indications and contra-indications of periapical surgery, non-surgical retreatment of certain endodontic failures.

CDA CONVENTION - QUEBEC 1991

SCIENTIFIC PROGRAM HIGHLIGHTS

SYLVIE MORIN *, D.M.D., M.S.

Quebec, Quebec

"Posterior Teeth Restoration in Surgical Dentistry: Review of Materials and Techniques"

This conference will review, in detail, the various dental materials and techniques currently used in surgical dentistry for the restoration of the form and function of posterior teeth. Different materials will be compared with respect to their clinical reactions, their ease of use, indications and contra-indications in various clinical situations.

Topics will include: direct restoration techniques, i.e. posterior amalgams and composites, principles for preparing cavities and application techniques, indirect restoration techniques, i.e. gold, composite and porcelain incrustation, principles for preparing cavities, laboratory phases and clinical phases.

GÉRARD BOUGER *, D.M.D., M.B.A.

Montreal, Quebec

"Marketing Your Dental Practice"

This lecture will present an overview of promotional techniques that can be used in the dental office to create a marketing plan for your dental practice. It will be geared for all members of the dental team.

Topics will include: a review of marketing terms and an explanation of the six aspects of the 'marketing mix' concept, evaluating the success of your dental practice and determining the most profitable areas of diversification and expansion, telephone communications and its value to your practice.

MARK SARNER, M.A.

Toronto, Ontario

"New and Improved: The Canadian Dental Consumer in the 1990's"

This presentation will focus on Canada's demographics and related trends, and their implications for dentistry. The presentation will provide useful information on which dentists can base decision about long-term direction and daily operation of their practices - information dentists need to keep their practices relevant, viable and thriving.

Topics will include: Canada's population trends, the growth in Canada's seniors population, the decline in the number of children, changing family structures, shifting immigration patterns and changes in Canada's ethnic composition, attitudes of the 'new' dental consumer.

HÉLÈNE LEMAY *, D.D.S., M.Sc
ANNE CHARBONNEAU *, D.M.D.

Montreal, Quebec

"Local and Electrical Anaesthetics"

Complications in local anaesthesia is defined as an event which disturbs the normal evolution of local anaesthesia. They are generally events that are temporary and harmless but they occur frequently (palpitations, etc.). This presentation will discuss a series of rare signs and symptoms that occur during the local anaesthetic procedure. Because they are unusual and rare the exact diagnosis is sometimes difficult and not so evident. It is the reaction of the patient that we remember for a long time because of the traumatic effect it has on us.

Topics will include: true and temporary dosage, type-one hyper-sensitivity and bizarre neurological reactions.

Recently, new electrical (and electronic) dental anaesthetic (EDA) equipment has been introduced to the North American market. But is this really new? Many of the theories that explain how the EDA affects the perception of pain will be explained.

Topics will include: an evaluation of the main EDA equipment available in Canada - including a review of its advantages, limitations, indications, contra-indications, success rate as well as discussion on how to implement this equipment into an already existing dental practice.

* denotes French Presentation

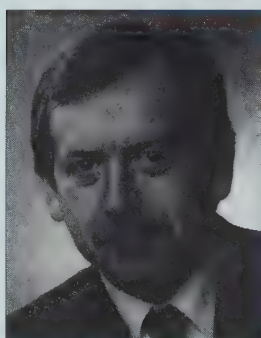
** For highlights of the other presentations please refer to the April issue of the CDA Journal. Next month will feature the highlights of the Laval University presentation.

CDA CONVENTION - QUEBEC 1991

1991 SCIENTIFIC PROGRAM CLINICIANS



Charles Blair
DDS
Charlotte, NC



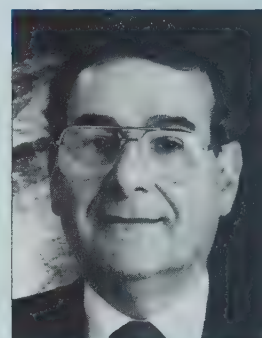
Gérard Bouger
DMD, MBA
Montreal, QC



Anne Charbonneau
DMD
Montreal, QC



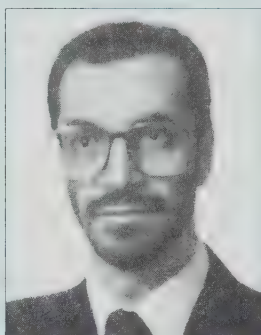
Marilyn Ciano
BA, MA
Buffalo, NY



Sebastian Ciano
DDS
Buffalo, NY



Philip Molloy
DMD
Boston, MA



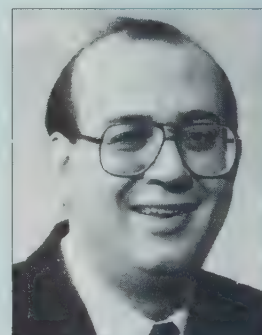
Domenic Morielli
DDS
Montreal, QC



Sylvie Morin
DMD, MS
Quebec, QC



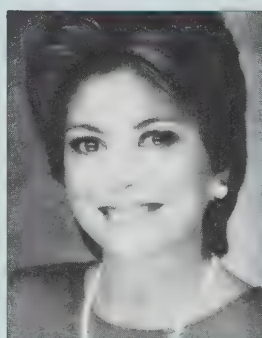
Léo Pelletier
DMD, MRCD
Montreal, QC



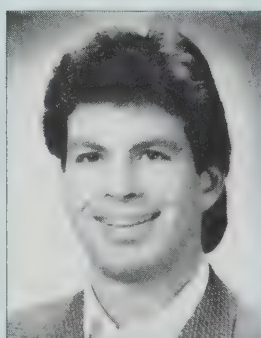
Salam Sakkal
DMD, MS
Montreal, QC



Dennis Smith
DDS, MSc, PhD,
DSc
Toronto, ON



Barbara Steinberg
DDS
Pittsburgh, PA



Lorne Wiseman
DDS, Dip. perio.
Montreal, QC



Edwin Yen
DDS
Winnipeg, MB



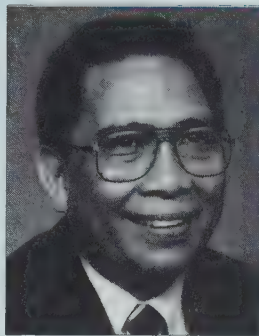
John Young
DDS, MSc
San Antonio, TX

CDA CONVENTION - QUEBEC 1991

1991 SCIENTIFIC PROGRAM CLINICIANS



Gilles Gauthier
DMD, MSE
Montreal, QC



Peter Guevera
DMD, FACD
Pittsburgh, PA



Anita Jupp
Toronto, ON



Joanne LaMantia
BA
Toronto, ON



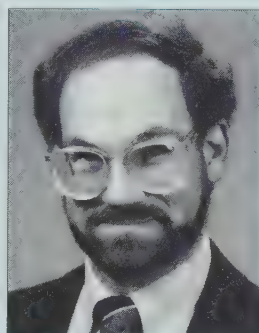
Hélène Lemay
DDS, MSc
Montreal, QC



Robert Samp
MD
Madison, WI



Mark Sarner
MA
Toronto, ON



Kenneth Shay
DDS, MS
Milwaukee, WI



Sol Silverman Jr.
MA, DDS
San Francisco, CA



Olga Skica
DDS, Cert. perio.
Montreal, QC



CDA CONVENTION - QUEBEC 1991



Maison Chevalier at Place Royale, Old Quebec

TABLE CLINICS

Table Clinics are defined as a brief table-top presentation or demonstration of five to ten minutes duration using visual aids, and repeated over a 2 1/2 hour period.

Those interested in presenting, write to:

TABLE CLINICS
CDA Conventions
1815 Alta Vista Dr.
Ottawa, Ontario
K1G 3Y6

SIMULTANEOUS
TRANSLATION

TUESDAY, AUGUST 27
8:30 - 9:30 AM

JEFFREY SIMPSON "CANADA AT THE CROSSROADS"



The 1991 edition of the **Murray McDonald Memorial Lecture** sponsored by the Canadian Fund for Dental Education (CFDE) will feature an address by Mr. Jeffrey Simpson, National Affairs Columnist for *The Globe and Mail* and contributor to *Le Devoir*.

Winner of a National Newspaper and Magazine Award for column writing, *The Globe and Mail's* National Columnist has a keen ability to analyse and speak passionately about the state of the nation in these troubled times.

Regular weekly appearances on CBC's *Sunday Report* complement Jeffrey's extensive work in important magazines and his long list of books, which include *Spoils of Power: Political Patronage in Canada*.

Whither Canada? Jeffrey Simpson knows.

CDA CONVENTION - QUEBEC 1991

SPOUSES' PROGRAM

Walking Tour of Old Quebec
Principles of Wine-tasting
Lunch in Old Quebec

Lecture Presentations

Dr. Robert Samp on
Stress and Survival Strategies
Marilyn Ciano on
Leadership and Volunteerism

...and more

More details forthcoming in
future issues of the CDA Journal



Sidewalk Cafés along Grande Allée, Québec

CHILDREN'S PROGRAM

**A two-day program for children ages 5 and up,
co-ordinated by Québec's YM-YWCA**

Monday: * A full-day trip to the zoo (weather-permitting)
(in the event of rain the children will enjoy a 'special' presentation in
doors and a trip to the "Voûtes du Palais" (vaults) in the afternoon);

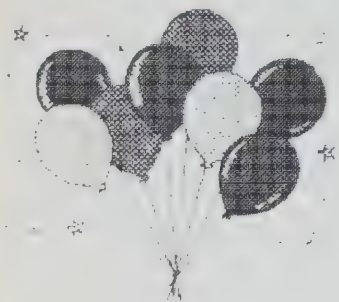
Tuesday : * In the morning, a trip to the Museum of Civilization;
* In the afternoon, games and activities at the "Y-Québec" - remember to
bring your sneakers and swimsuits!

*Register your children today - bilingual supervision, daily snacks
and lunch included!*



CDA CONVENTION - QUEBEC 1991

SOCIAL PROGRAM



OPENING CEREMONY
SUNDAY, AUGUST 25
5 PM - 7 PM



Grand Théâtre du Québec

A variety of entertainment for the entire family and every member of the dental team. Featuring talent from Quebec and area. The first 1,800 registrants are guaranteed a seat providing they indicate they are planning to attend on their pre-registration form.

ANNUAL FUN RUN

1,2,3 kilometres or more...
YOU decide!

Plan to participate in the CDA's
Annual Fun Run
...just for the fun of it!!



Monday, August 26th
Run begins at 7 AM

Participants to meet at the Hilton
parking lot (6:30 am) and walk to
the site - the historic Plains of
Abraham.

Monday, August 26

Elegance at its best!



"SOIRÉE CHARME ET CHAPEAU"

The cherished **President's Gala Dinner and Dance** (black-tie optional) will feature the music of **Roland Martel** and his orchestra. **Martel's Big Band** has been entertaining Quebecers and visitors from all over the world for years! It has kept up with every musical trend, evolving constantly, and offers a wide repertory of dance music to suit any occasion.

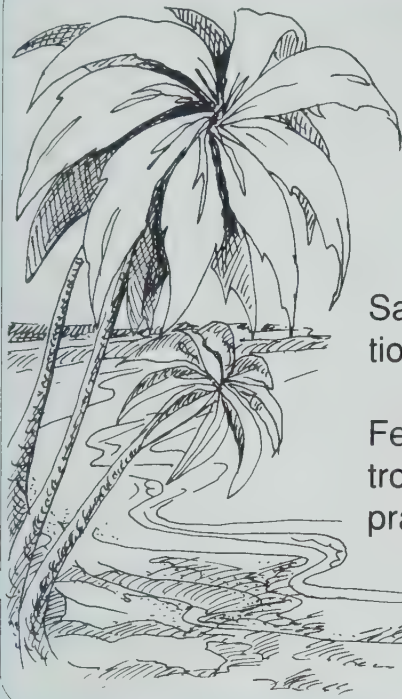
Indeed, it promises to
be an enchanting
evening...

**Request your tickets
when completing your
pre-registration form.**



CDA CONVENTION - QUEBEC 1991

SOCIAL PROGRAM



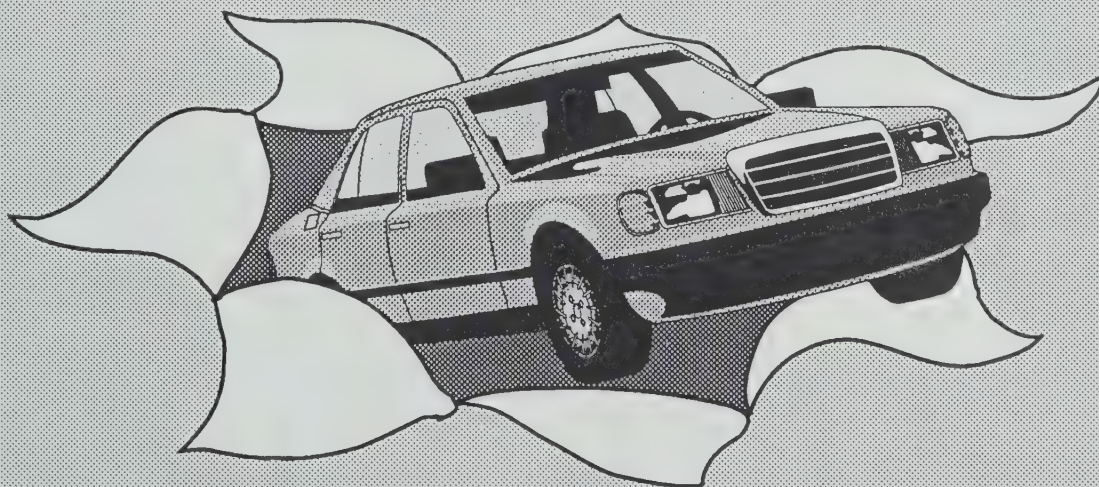
"SOIRÉE TROPICALE"

TUESDAY, AUGUST 27

Sail away to a tropical "Island of Paradise" at the 1991 CDA Convention's 'Meet and Greet' event.

Featuring "**Son del Pacifico**" specializing in the dance rhythms of the tropics, Latin America and the Caribbean - an excellent opportunity to practice the 'lambada', the 'cumbia', the 'samba' and the 'merengue'!

Visit the 1991 Exhibit Hall
and qualify to WIN...



Special thanks to Aurum / Classic Dental Laboratories, sponsor of the 1991 Grand Prize for CDA'S Exhibit Attendance Draws.

CANADIAN DENTAL ASSOCIATION CONVENTION

Quebec • August 24 - 28, 1991

PRE-REGISTRATION FORM • Please PRINT

With the computerized registration system, it is *essential* that each registrant fill out a separate form. To ensure your requests are accommodated - *register early*. Advance registrations will be accepted until **July 10, 1991** after which they will be returned to the sender. Each on-site registration will be subject to a \$27.00 administrative fee (GST included).

SURNAME: _____ FIRST NAME: _____ SEX: M F

ADDRESS: _____

(Street) (City) (Province)

TELEPHONE: () () ()

(Postal Code) (Office) (Residence)

CDA Membership Number: _____ License Number: _____

PRE-CONVENTION • AUGUST 24, 25 • Limited Attendance

SATURDAY, AUGUST 24

** Gordon Christensen, D.D.S., M.S., Ph.D. - RESTORATIVE - Lecture

Dentist \$ 160.00

Staff \$ 70.00

Intiaz Manji, B.Sc. & Tom Snyder, D.M.D., M.B.A. - COMPUTERS - Hands-on Program

Dentist (limited attendance) \$ 250.00

Staff (limited attendance) \$ 250.00

SUNDAY, AUGUST 25

Intiaz Manji, B.Sc. & Tom Snyder, D.M.D., M.B.A. - PRACTICE MANAGEMENT - Lecture

Dentist \$ 160.00

Staff \$ 70.00

Torsten Jemt, D.D.S., Ph.D. - IMPLANTS - Hands-on Program

•TWO-DAY COURSE: SATURDAY AND SUNDAY•

Dentist (limited attendance) \$ 350.00

* GST is not charged on Pre-convention courses. ** Simultaneous translation.

CONVENTION • AUGUST 26, 27, 28

☐ DENTIST

Member, CDA \$ Nil

Non-member, Others (7% GST included) \$ 155.00

Includes: Scientific sessions and exhibits

If you would like to use this opportunity to become a CDA member,

call CDA Conventions at (613) 523-1770.

☐ DENTAL HYGIENIST

CDHA Member (7% GST included) \$ 70.00

Non-member (7% GST included) \$ 102.00

Includes: Scientific sessions and exhibits

☐ DENTAL ASSISTANT

CDA Member (7% GST included) \$ 70.00

Non-member (7% GST included) \$ 102.00

Includes: Scientific sessions and exhibits

☐ **TECHNICIAN** (7% GST included) \$ 70.00

Includes: Scientific sessions and exhibits

☐ **ADMINISTRATIVE PERSONNEL** (7% GST included) \$ 70.00

Includes: Scientific sessions and exhibits

☐ **STUDENT** ☐ Dentist ☐ Hygienist ☐ Assistant \$ Nil

Includes: Scientific sessions and exhibits

☐ **ACCOMPANYING PERSON/SPOUSE** ... (7% GST included) \$ 102.00

Includes: Scientific sessions, exhibits and Spouses' Program.

☐ **CHILD** (7% GST included) \$ 65.00

Open to children 5 years and older. Child's age: _____

Includes: Access to convention and Children's Program.

GST Registration Number: R016845209

☐ SOCIAL EVENTS

Sunday - Opening Ceremony - Subject to space availability

Will attend ☐ Yes ☐ No \$ Nil

Monday - President's Gala - "Soirée Charmé et Chapeau"

(per person) (7% GST included) \$ 60.00

Tuesday - Meet & Greet - Tropical Night

Will attend ☐ Yes ☐ No \$ Nil

FUN RUN

Monday A.M. (7% GST included) \$ 16.00

TOTAL

The above registration fees are paid by _____ \$

☐ I wish to pay the above total by credit card: ☐ MasterCard ☐ VISA ☐ AmEx

Card#: _____ Expiry date: _____

Signature of Cardholder: _____

☐ I enclose a cheque payable to the Canadian Dental Association.

Post-dated cheques will *not* be accepted.

Mail registration form with payment to:

1991 CDA Convention

1815 Alta Vista Drive

Ottawa, Ontario

K1G 3Y6

Dentists, Assistants, Hygienists, Office Personnel & Technicians registering by July 10, 1991 will be eligible to win two tickets anywhere Air Canada flies in Europe and North America!

Quebec 1991

How to register for the CDA Convention

Filling out Your Registration Form

1. Register early, some courses and events have limited attendance.
2. There is only one registration form to be used by all categories of participants.
3. Use one form per person (photocopy for several registrants).
4. Spouses and children should have a separate form for each individual.
5. Total the dollar amount of activities and courses you plan to attend, and either provide the necessary credit card information or make cheque payable to the Canadian Dental Association.
6. If your payment covers the cost for several registrants, your name or company name should be clearly indicated in the appropriate space on each registration form.
7. If hotel accommodation is needed, fill out the hotel reservation form.
8. If travel arrangements are needed, call Air Canada Convention Central for the best rates and services.

Filling out Your Hotel Reservation Form

1. Reserve early. August is a very busy month in Quebec. We have negotiated for you the best rates possible at many of Quebec's luxury hotels, but hotel rooms are limited in number.
2. CDA is handling the hotel reservations in house, so you **will not** be able to reserve directly with the hotel.
3. Use one reservation form per room.
4. Your reservation will be confirmed by the hotel.
5. You must guarantee your room for the first night by providing credit card details. The information you provide will remain with the hotel until your scheduled date of arrival – only then will the hotel credit your account.
6. Any further changes to reservations should be made through CDA Headquarters.

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Air Canada has been appointed the sole official carrier for the Canadian Dental Association 1991 Annual Convention in Quebec. Special arrangements have been made with Air Canada to offer convention participants discounts on air fares. To take advantage of this service, you must call Air Canada's Convention Central when booking your tickets (your travel agent can call on your behalf). Dial **1-800-361-7585**. The Convention Central hotlines are open **weekdays, 8:30 a.m. to 8:00 p.m. EST/EDT**. Identify yourself and the CDA convention. Air Canada's convention experts will do the rest. The lowest fare available will be confirmed to you, subject to availability and advance purchase conditions.

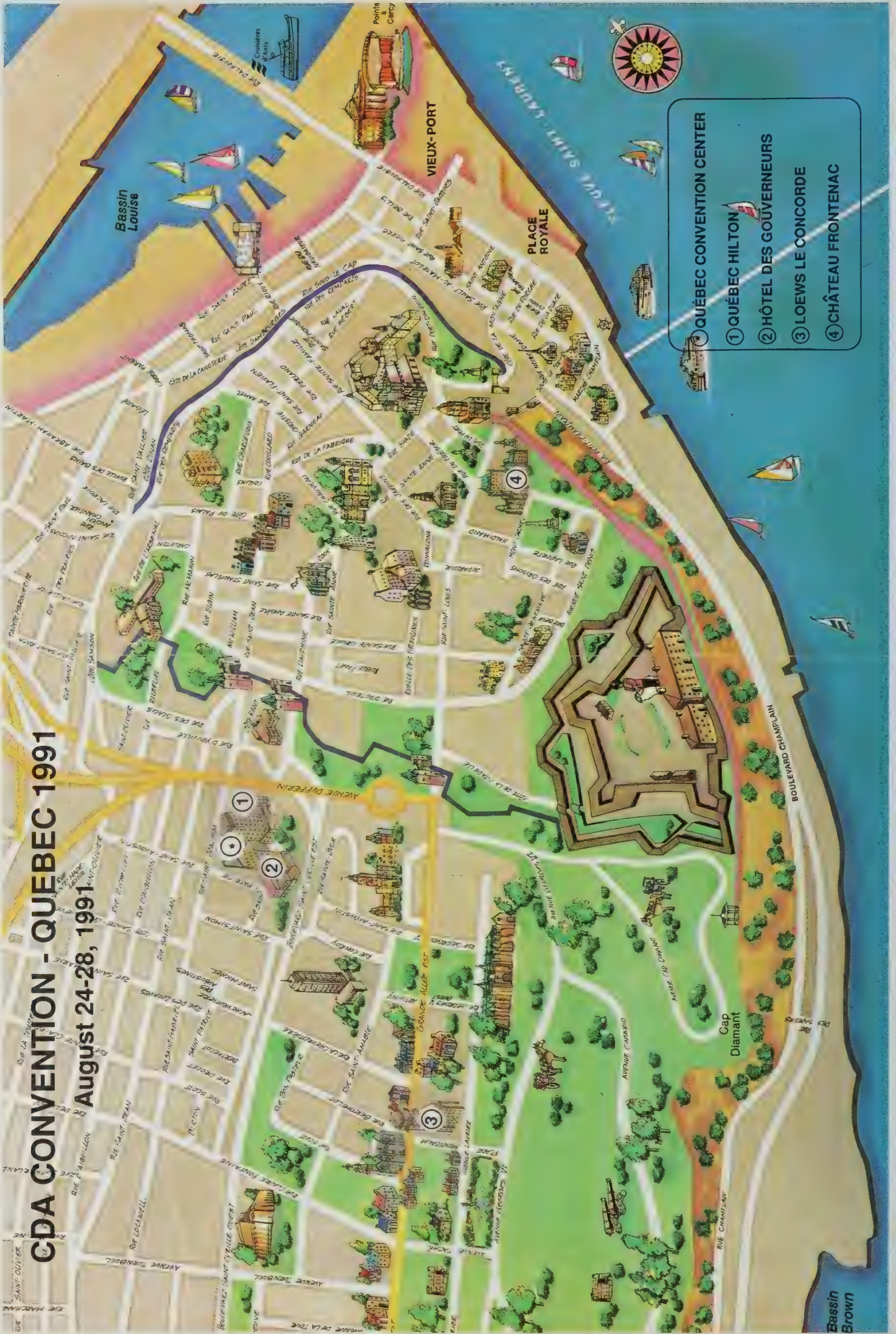
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August 24 - 28, 1991 ■ Quebec

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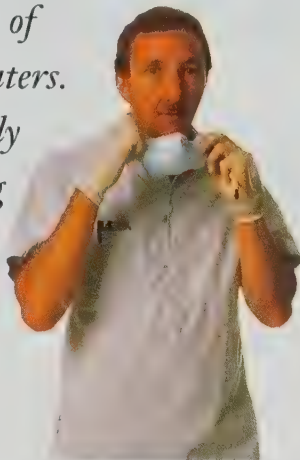
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Dr. Gary MacDonald
Executive Director
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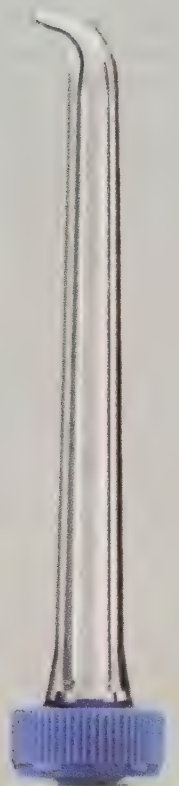


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1. Flemmig T, Newman M, Doherty F et al. Supragingival Irrigation with 0.06% Chlorhexidine
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Editor's Note: Three hundred years later we have an ample supply of all three — clowns, asses and drugs. It's making the choice that's difficult!

Practice Management & Success

Incentives & Profit Sharing

By *Imtiaz Manji, BSc*
ExperDent Consultations Inc.

Why Do They Fail?

Incentive and profit-sharing programs are some of the most difficult strategies to implement in the dental office. Very few practices develop programs that succeed, but when they do the benefits are worthwhile. Too often the practice and office team are fractured by the stress and emotional overhead of a poorly executed reward-for-achievement program. In this article, I will outline six reasons why these programs can fail to meet their objectives.

Before I begin, I want to define some terms. Many people use the terms *incentive*, *profit-sharing* and *bonus* interchangeably. I do not. Each one represents a different approach to rewarding staff for effort beyond reasonable performance expectations. This article is about incentives and profit-sharing, not bonuses. However, for the sake of clarity, I have included its definition in my discussion.

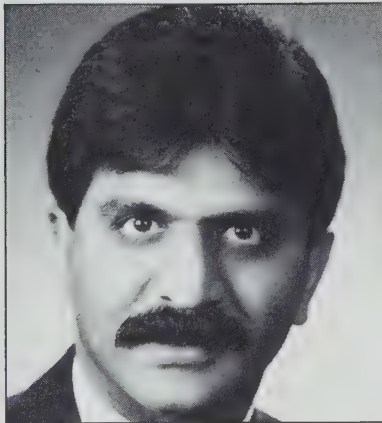
Incentives

The purpose of an incentive program is to promote increased productivity. Productivity in the practice is measured in many ways: pure production levels of the clinical and continuing care departments, new patient flow, collections ratio, scheduling efficiency, treatment acceptance rates, etc. It is critical to understand that every team member does not have the same ability to affect all productivity indicators. Your hygienist has less control on

your productivity than she does on her own. Therefore, incentive programs should be designed to reward team members on their *individual* achievement and product-

ivity in areas of the practice they have control over.

An important point to keep in mind is that increased productivity does not guarantee increased profitability. Expenses, which can rise as easily as productivity, are not accounted for in incentive formulas. Incentive programs can end up costing the practice more.



*Imtiaz Manji, President
ExperDent Consultants Inc.*

Profit-Sharing

The purpose of a profit-sharing program is to promote increased profitability. Profitability in the practice is measured only one way: total production less operating costs. Profit is the result of the combined actions of all team members. Therefore, each team member plays an equal role in improving practice profitability. A profit-sharing program should be designed to reward team members on their *group* achievement. The best advantage of a profit-sharing program is that productivity increases faster than costs, so the expense of the program is justified by its return.

Bonuses

The purpose of bonuses is to appreciate efforts in the office that deserve acknowledgement and exceed the scope of your compensation package. Bonuses can be given to the team as a whole or to individual members. However bonuses should not be used as an incentive program; their focus is to reward exceptional and singular events meriting recognition.

Bonuses should primarily be used as a technique for building the dental team. As such, bonuses do not have to be given based on profitability or productivity, and they do not have to be cash. Flowers, theatre tickets or restaurant gift certificates can all be used to let a staff member know that his/her extra effort has not gone unnoticed. Whether your practice has an incentive/profit-sharing program or not, you should be sensitive to events which deserve special recognition

through bonuses.

Six Reasons for Failure

The benefits of a good incentive or profit-sharing program are alluring. The drawbacks to a failed program are disastrous. Since reward-for-achievement programs are based on measuring the performance of individuals or the team as a group, improperly implemented programs can be perceived as judging the relative value of team members in the practice. This inevitably leads to attacks on self-esteem, and resentment between team members (including you). Unlike other emotional issues which you have dealt with in your practice, resentment and distrust springing from these issues are almost impossible to resolve. The spirit and cooperation of your team can be shattered.

Next I have listed the six vital concerns in reward-for-achievement programs. Practices that do not carefully consider these points are inviting failure into their office. Owing to the severe effects of a poorly conceived program, it is essential to take every possible precaution to ensure success.

Purpose

A reward-for-achievement program should not be used to motivate staff to perform their jobs to reasonable standards. Experience has proven that money is a good short-term motivator, but its effectiveness is soon eroded. An unmotivated team prior to an incentive/profit-sharing program will eventually lose interest and return to old ways.

There are many factors that affect motivation, and different people are motivated in different ways. No practice is able to say there is one single factor that motivates everyone on the team to perform at their best. Here is a short list I have compiled of some of the most common motivating factors. Look to these, rather than an incentive program, to motivate staff performance:

Recognition, cooperation, responsibility, team work, flexibility, office environment, respect, honesty, security, commitment, involvement, interest, leadership, enthusiasm, focus, goal definition,

variety, organization.

What is the purpose of a reward-for-achievement program if it is not to motivate staff to do a better job? Simply this: incentive and profit-sharing programs communicate to staff that their efforts affect the success of the practice. It allows them to take ownership in the growth of the practice and set their own performance standards. It tells your team that you are interested in and committed to their personal success as well as the success of the practice. Staff whose performance exceed your expectations deserve recognition.

Preparation

Many practices try to implement an incentive or profit-sharing program without the proper systems in place. The goal of an incentive program is not to gloss over practice productivity problems. The office team must already be functioning at or close to the levels of profitability and productivity that you find acceptable. Also, you must have a high level of trust and commitment in the team, a comfortable daily flow, good communication procedures and an understanding that the practice's number one priority is the patient, not productivity levels.

"No practice is able to say there is one single factor that motivates everyone on the team to perform their very best."

Vital to the management of the program, you must already have in place the reporting systems that are necessary to measure results. The monitors I discussed in my last two articles are an ideal technique to measure practice success. The team must be familiar and comfortable with the reporting system that will be used to gauge their performance.

Communication

Communication is critical! A team that does not have strong interpersonal and team communication skills in place can be torn apart by an incentive/profit-sharing program. The need for effective communication skills comes from three perspectives.

First, the team needs to feel comfortable discussing the program in advance of its implementation. It is important that the team try to anticipate any grey areas in

the program and solve them before they become issues.

Second, the team must communicate monthly about the program once it is implemented. Results from the previous month should be promptly reviewed and areas that have held back the success of the program should be discussed. Since this may involve discussing the performance of a particular individual in the practice, it is essential to disarm the tendency to assign blame. At all times, a cooperative approach must be taken. Concerns about the mechanics of the program should be discussed with priority and changes made when the team as a whole agrees it is necessary.

Third, since there is such a high potential for failure in reward-for-achievement programs, good communication skills can disperse the negativity around a failed program and allow the team to get back to normal conditions quickly.

Commitment

Incentive and profit-sharing programs only work when the office team chooses to let them succeed. Since the effectiveness of these programs can be easily sabotaged by the team, it is necessary that every team member be fully committed to the program before it begins.

Achieving commitment from the team is not as simple as having each team member sign a piece of paper acknowledging his/her acceptance of the program. The commitment must come from the heart of each person. They must honestly and truly feel that the program is fair, beneficial and achievable. Any doubts they have will undermine their commitment and reduce the opportunity for success.

As important as commitment from the team must be commitment from management. Since the program is being initiated by you, you have an obligation to be enthusiastic and open about it. You must be willing to compromise and negotiate the terms of the program so that doubt is neutralized while your objectives are maintained. When the team meets the goals of the program, you must celebrate that event since it means that they have met your goals for practice growth as well.

Mechanics

The exact details of how the incentive program functions is individual to each practice. I will not recommend a precise formula to use because I believe each

practice's needs and team profile are different. There are 4 steps to consider when you are developing the mechanics of an incentive or profit-sharing program for your office.

First, you need to determine a reasonable level of profitability that is required to sustain your business. Many practices make the mistake of under-estimating their minimum profitability level. It should be determined by taking into account your operating expenses, a salary for you as a member of the dental team, debt retirement needs, normal practice growth and a return on investment for you.

Note: If your minimum profitability level is significantly higher than what you are currently achieving, it is likely the wrong time to implement any kind of long-term incentive or profit-sharing program.

Second, you need to translate your profitability requirement into a goal for team productivity. Break the team goal down into specific productivity goals for each area of the practice (i.e. clinical, hygiene, collections, scheduling, new patient flow, etc.). Communicate with your staff about the breakdown, and ensure that every team member understands these goals reflect the minimum performance standards of the practice.

Third, determine whether you should implement an incentive program, profit-sharing program or combination program. My experience has shown that practices with a small team succeed more often with a profit-sharing program rather than an incentive program. Practices with a large team may want to consider a combination approach. This allows you to provide individual rewards to hard-working team members, and still profit-share with the entire team as a whole if profitability goals are achieved. Regardless of which approach you use, everyone in the practice should participate equally in the program.

Fourth, develop a structure for the program that reflects your practice objectives. Since your minimum profitability level includes allowances for your salary, debt retirement, practice growth and a reasonable return on your investment, profitability above that level is purely a windfall. Determine the improved productivity levels that would please you, but ensure they are achievable. An incentive program that never pays has no value to your team and is demoralizing. It is also a good idea to set tiered goals so that there

is always a higher goal (and greater reward!) to achieve. Most importantly, keep the program simple and easy to understand. Ideally, each team member should be able to self-monitor their performance through the month.

Maintenance

The final point of failure for many practices is maintenance. Even if you carefully attend to the previous five points, failing to have a maintenance structure in place will prevent long-term success. Since change is occurring constantly in your practice, the program will have to adjust over time to allow for new circumstances. For example, how do new employees get started on to the program?

A maintenance strategy must include monthly review meetings. The purpose of the meeting is to examine the previous month's results and discuss why goals were/weren't achieved. Again, the meeting must be cooperative and finger pointing must be discouraged. The point is to ensure the program continues to involve and interest team members, and continues to meet its objectives.

Finally, the entire program needs to be reviewed from top to bottom at least once every year. Ideally, the review should coincide with annual salary and wage negotiations. The review should recalculate the practice's minimum profitability level, establish new productivity goals, and re-focus the team's direction to maximize practice growth and success.

A successfully implemented, long-term reward-for-achievement program is a worthwhile objective. Plan to introduce this strategy into your practice when your team is ready for it. The result can be an exceptionally productive, committed and focussed dental team.



Smart Card

Normally in this column I discuss technology that can be readily implemented in dental practices. In this issue, I am going to discuss the development of magnetic stripe and "smart" card technology which has the potential to profoundly affect the health care industry in general.

Many years ago, bank and credit cards started to appear with a black stripe on the back of them. The stripe, made of a magnetic material similar to an audio tape or computer disk, was capable of storing information about the card and the cardholder in a form that could be read by electronic equipment.

At first, the black stripe on the card was unused. Nothing you did with the card utilized the information stored on the stripe. Why, then, was the stripe on the card? The reason was that card companies saw potential in the technology. They anticipated the value of its capabilities as the demand and technology for the communication of information expanded.

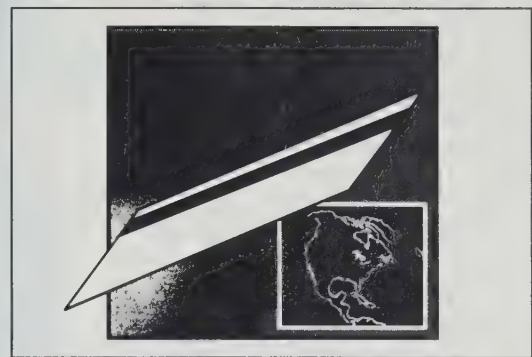
Just a few short years after its introduction, the magnetic stripe was supplying convenient access to new services. Banking machines appeared and the consumer was liberated from the treachery of banking hours. In the last decade, advances in computer technology have made the magnetic stripe an indispensable part of commerce. The information contained on the card allows computers to quickly execute transactions for you without the expense of someone having to serve you. There's even a music store in California staffed by a robot that retrieves a compact disc you want after you insert your credit card.

As a result of the proliferation of magnetic stripe devices, the cost of the technology to read magnetic stripes has dropped. Companies and organizations that are much smaller than national banks and multinational credit card companies can now afford to use magnetic stripe cards in their organizations. Many use them for security purposes.

Health Care Applications

Recently, magnetic stripe cards have found their way into health care where card technology will have a significant impact. For example, in British Columbia every subscriber to the provincial health

TECHNOLOGY



care plan has an individual card with a magnetic stripe that records their basic demographic information and medical insurance coverage. The receptionist in a medical office can slide a new patient's card through a swipe reader to automatically add the patient's information into the office computer system. It is difficult to imagine an easier and more accurate system.

As magnetic stripe technology becomes commonplace, new advances in card technology are being developed. One of the most exciting is the prospect of a "smart" card. Smart cards differ from magnetic stripe cards by a computer chip that is mounted on the card. This provides two important advantages:

- Smart cards have the potential to record much more information.
- The technology to change and add to the information stored on the card can be easily and inexpensively produced.

Smart cards are now being tested by card companies in a number of markets. Already in trial is a "debit" card that automatically transfers money from your bank account to the merchant — sort of like an instant electronic chequebook.

Smart Cards in Dentistry

What is the potential of smart cards in dentistry and health care? It is tremendous, exceeding their potential in almost every other field and industry. Since smart cards will be able to store much more information, it is possible to envision a patient having a single health card. On their card will be complete demographic information, accurate records of allergies and vital health alerts, and details of their insurance coverage and dependents.

In a few years from now, the technology will exist to create smart cards that

can carry the patient's complete health care treatment history. Important medical considerations will be diligently logged and accessible to you on the patient's first visit to your office. The patient's entire dental history will be recorded so that you can consider all the factors relevant to the patient's needs. Patient limits on insurance coverages will be up-to-date, even if the patient had treatment from another dental practice in the same year.

Imagine a time when you need to refer a patient to a specialist and can transfer all your diagnostic information, including x-ray images, onto the patient's card. When the patient arrives at the specialist's office, everything the practitioner requires to begin his treatment will be promptly in place.

Sound far-fetched? It's not. Progress is already underway to integrate patient information across the spectrum of health care. Although smart card technology is still being developed, magnetic stripe cards are here now! Initiatives like the medical plan in British Columbia and EDI/CDAnet in dentistry are pioneering the use of card technology in health care. One of the directives in the EDI project has standardized insurance companies (as an industry) on the information required to administer patient insurance plans. As a result, some insurance companies have begun to give subscribers magnetic stripe cards with plan information encoded on the back in the new standardized format. In a matter of a few months, you'll be able to transfer the information off the card directly into your office computer system. Eventually, as smart card technology is improved and finds its way into the mainstream, it will be taken up by health care and the administration of your practice database will be even further simplified.

Smart cards have the potential to integrate the efforts of all health care providers — from the dentist and medical practitioner to the surgeon and pharmacist. By simply improving the flow of information between providers, the patient will receive better and more timely health care. The administration of your practice will be streamlined. Best of all, the accuracy and completeness of the information affords you the optimum environment for meeting the patient's individual health needs. Δ

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DR. DENIS WELLS The Story with a Heart

By P. Ralph Crawford, BA, DMD

On August 17, 1989, Dr. Denis Wells became a statistic: Heart transplant patient #105 at the Ottawa Civic Hospital Heart Institute. But Dr. Wells is much more than a statistic. He is the first Canadian dentist to receive a "successful" heart transplant and to carry on a normal dental practice with another individual's heart beating in his breast.

Now 48 years of age, Denis Wells never suspected his life would take such a critical turn. (Never without humour, when asked his age, Dr. Wells said, "It depends upon which part of me you are asking!")

Graduating with a Bachelor of Arts degree from the University of Western Ontario in 1965 and receiving his dental degree from the University of Toronto in 1969, Dr. Wells developed a thriving dental practice in Winchester, Ontario just south of Ottawa. He quickly immersed himself in dental association affairs, first with his local society and then as an Ontario Dental Association Board member. In 1986, he became President of the Ontario Dental Association.

Dr. Wells entered graduate training in Endodontics at Boston University in September 1987. It is here we pick up his amazing story — from the pinnacle of success, to death's doorstep and on to a greater victory.

A few weeks ago, the *Journal* interviewed Dr. Wells to determine what goes on in the "heart" and mind of an individual who travelled a lonely road none of us envy. This is Dr. Wells' personal story.

Journal: Dr. Wells, the first question we want to ask you is when did you first realize you had a cardiac problem?

Wells: Probably in January of 1989 when I went skiing with a mixed group. I noticed I was having some problems — mainly shortness of breath. But as most of us do in situations like this, you get into a denial mentality. You assume that you are merely out of shape, overweight and other things associated with your lifestyle — nothing related to a heart problem.



Dr. Denis Wells

Journal: Was it mainly shortness of breath?

Wells: Yes, and mostly when I exerted myself. I never considered myself to be a world-class skier but I could always ski in a relaxed way for good periods of time. Now I found myself having difficulty doing that. I would have to stop more often and come in sooner. But again, you think of other causes. I thought I had a touch of the flu or I was just out of shape. It was my first time out that season.

Journal: What did you do about it?

Wells: Nothing! I went back to Boston and resumed a normal life.

Journal: This was while you were taking post-graduate endodontics?

Wells: Yes, I was between the third and fourth semester of the program. It was rather strange. I was able to carry on with a regular routine at College — attending classes and clinics and climbing stairs. It wasn't until another ski session in February of '89 that I began to realize there was something wrong aside from lack of conditioning. I was having a tremendous amount of difficulty just carrying my skis up the hill to the lift.

I didn't have any real pain, mainly discomfort.

Journal: Eventually you must have sought out some help?

Wells: Yes, and I can remember the date: it was St. Patrick's Day, 1989. I wasn't getting any better and being in a health profession I realized there must be something wrong with my cardio-vascular system. I presented to the Students' Health Care Facility at Boston University. The physician there took one listen and immediately sent me over to the emergency unit at Boston University Medical Centre. The long and short of it was that after a couple of x-rays and a number of doctors listening, they very strongly recommended that I admit myself immediately for further testing. Which of course I didn't do! I had to chair a condominium association meeting that evening.

Journal: The condo meeting was a priority?

Wells: That's right! It was a classic case of denial. But I was getting my head around the fact that I was heading for big trouble. I did go back to the Medical Centre and met an absolutely wonderful physician, Dr. Gary Balady. He indicated to me that I was a very sick individual and persuaded me to admit myself for further testing. Within 48 hours, I had a cardiogram, an angiogram and a biopsy. The results indicated I had a viral myocarditis which essentially is some kind of a "bug" which gets into the heart muscle, weakens it and produces a dilated cardiomyopathy. It was at this point that Dr. Balady gave me what I like to call my "airplane crash". He told me I would require a heart transplant.

Journal: How does a physician tell you you need a new heart?

Wells: Just about like that. "You will need a heart transplant." He had told me I had an ejection fraction of less than 10%. (To put that into perspective, nor-

mal is somewhere around 60%.) What 10% meant of course was that in terms of circulating blood from the left ventricle, my heart wasn't pumping worth a damn.

Journal: *Were there any alternatives to a transplant?*

Wells: Yes, I could try medication. Nobody wants to leap into a heart transplant but I think in my case it was too little too late. I didn't improve much but I came back to an Ontario Dental Association meeting in Toronto. It was May 1989, and I celebrated my 20th anniversary of graduation. I also went to the ODA Past Presidents' dinner but I had an absolutely terrible time. I just wasn't feeling well at all.



Nobody wants to leap into a heart transplant but I think in my case it was too little too late.

Journal: *What did you do about it?*

Wells: I returned to Boston and admitted myself to hospital. This time a more aggressive approach to diuresis was accomplished and I felt tremendously better. I obviously was carrying a lot of excessive fluid around in various compartments of my body. My ejection fraction rose to about 15% and I did fairly well for the next year — until June 1990.

Journal: *You completed your specialty requirements?*

Wells: Oh yes. I returned to Ottawa and joined the endodontic practice of Drs. Bernie Dolansky and George Citrone in July 1989.

Journal: *You were feeling quite well?*

Wells: Actually, not too badly. Even with a 15% capacity, I was able to carry on a full-time practice and peddle around town on a bicycle. I even went skiing in the winter of 1989-90. It's amazing how the body can compensate.

Journal: *Is there a certain amount of will and stubbornness involved in all of this?*

Wells: I think so, but I guess there is also a certain amount of stupidity. You just

don't want to give up. I really wasn't fooling myself. Dr. Balady in Boston had transferred all my records to the Heart Institute in Ottawa and despite functioning fairly well for 12 or 13 months, I realized it wasn't a question of "if" — it was "when". All the preparatory work had been done in Ottawa in case I had a sudden incident.

Journal: *When did things deteriorate again?*

Wells: It is hard to pinpoint but around July of 1990, I went on a vacation and things didn't go well. I felt rotten. Upon returning to Ottawa the Tuesday after the August long weekend I had some tests and found the ejection fraction had fallen to less than 6% — barely measurable. It was at this point that I was put on the transplant list.

Journal: *Now what did you do?*

Wells: Fool that I am, I went back to work the next day — after all, I had patients booked! However, I did keep an appointment at the Heart Institute on Friday for the first of two sessions with the transplant nurse. They like patients to be fully orientated for the process. Friday the 10th of August was to be my last day of work. I now settled in to wait. This was the worst part of the whole episode — knowing you are close enough that you need it, but not knowing when.

Journal: *What does go through your mind as you're waiting?*

Wells: It was Monday when it really hit me. Everyone went off to work that morning. I sat at home — waiting and pondering my fate.

Journal: *Did they give you any idea of how long you might have to wait.*

Wells: That's the hard part and the one that often throws you into depression. How are you going to deal with the time if you have to wait three, four, six months? There are stories out there about people waiting eighteen months and more. And stories of people who die waiting. All this goes through your mind.

Journal: *What are the criteria for a donor?*

Wells: There was a long check list prior to 1983 and the advent of the anti-rejection drug cyclosporin. Today there are essentially two criteria: blood type and body size.

Journal: *As a health professional you must have been researching the field?*

Wells: Yes, I was and that had its good and bad points. I was able to learn a great deal about the process. You increase your knowledge but you also learn the risks. A mortality rate of 15% occurs in the first 30 days, not everyone gets off the table, and major rejection problems may also occur in the first month.

However, you must be optimistic. I was fortunate to meet a 35-year-old man from Timmins, Ontario who was just over his first 18 months. Talking to him gave me plenty of hope.

I was still in the "first-week novelty stage" of the waiting period when I received my phone call at noon on Thursday.

Journal: *What did they say to you?*

Wells: "Dr. Wells, we have a heart for you." Just like that! It was a very emotional moment and you don't have much time to think — they want you there *now*. Looking back, I was very fortunate because I literally had only a four-day wait. Considering my condition, I was also very fortunate because short of putting a Jarvik in my chest, I wouldn't have lasted until Thanksgiving — about three or four months.

"Dr. Wells, we have a heart for you." Just like that! It was a very emotional moment and you don't have much time to think — they want you there now.



Journal: *Do you recall very much about going into the operation?*

Wells: Not a great deal, I didn't have much time. I was admitted on Thursday afternoon and the transplant was completed sometime early on Friday morning. You're drugged and prepped as soon as you get there so you really don't have much of a chance to dwell upon it.

I remember waking up in intensive care and recall two incidents: one, Brian the nurse, saying very firmly and positively in my ear, "The operation is over, everything went well and you're doing fine." This certainly brought me a great deal of relief; the other thing was that I knew I was going to make it because all of a sudden I could **breathe**. The load of water,

whatever, that was giving me difficulty in my lungs seemed to have cleared up when the new heart began working. I could actually take a deep breath. I was able to do something I hadn't been able to do for two years — take a good breath of air. I knew I had a real "shot" at making this thing go!

Journal: *How long were you in intensive care?*

Wells: About 48 hours, and then they moved me to the ward. On my first day there they had me out of bed with assistance. They make you do "doors" — walk you three or four doors down the hall and back.

I was really fortunate. Because I didn't have a long waiting period my muscles didn't have time to atrophy and now that they were getting good perfusion, I was able to do therapy exercises with relative ease. The operation was on August 17th and on August 31st I was discharged.

Journal: *It has been over six months since the transplant. What therapy has taken place?*

Wells: The infrastructure that goes into producing a successful transplant is mind boggling; from the donor who makes it all possible; to the Lear jet that flies out to get the organ; and to the skilled surgeons, nurses, therapists, dieticians, social workers, rehabilitation and job re-training people. It is all very, very humbling. They all want to be there to lend support.

I honestly feel that I have a tremendous obligation to society to make this thing work. There is just no doubt about it. It is hard to express — I think the word *stewardship* says it best. I have a stewardship towards the organ I now have beating inside me. I absolutely must do all I can to take care of it.

Journal: *What are you doing? What type of therapy is involved?*

Wells: First of all there is drug therapy — what I call the "big three": — cyclosporin, prednisone and imuran. Thank goodness the dosages have come down considerably because the side effects are disconcerting to say the least.

Journal: *What sort of side effects?*

Wells: The key drug cyclosporin gives distal tremors. Initially I didn't have a legal signature and I was a danger when I tried to shave in the morning. Prednisone

can initiate tremendous mood swings such as sudden bursts of tears for no apparent reason.

Only this week I completed my 7th biopsy which, like the others, has been negative as it relates to organ rejection and they have been able to reduce the medication to tolerable levels.

Journal: *Are you on drug therapy for the rest of your life?*

Wells: It would appear that way, but so are a lot of other people. It's not a big deal as long as we can keep them to a bare minimum.

Journal: *Did you have severe pain after the transplant?*

Wells: Surprisingly, no. At least not from the twelve inch incision. Where I had the most discomfort was from my back muscles. When they open you up, (it's like endodontics, access is the game), they stretch the rib cage to a considerable extent. This really affects the back muscles and when you move about in bed it is very uncomfortable.

Another thing, and I can smile about it now, is that when you first begin to move about, you can literally feel the heart "flop about" because it hasn't fully stabilized itself within the chest cavity. It was only this morning that I told my cardiologist I finally feel "fully integrated" — the heart feels like mine.

The tissue perfusion one experiences with a new heart is nothing short of miraculous. You have a tremendous feeling of bursting energy — something you have done without for years. Shortly after the surgery I had an ejection fraction of 67%. Remember, it was less than 6% before the transplant. The surgeon told me he would have been ecstatic with 50%. I consider myself extremely fortunate.



When you first begin to move about, you can literally feel the heart "flop about" because it hasn't fully stabilized itself within the chest cavity.

Journal: *Are you exercising regularly?*

Wells: You bet! I go to the Rehab Centre twice a week. I spend some time on the rowing machine and I have a stationary

bicycle at home. I am now able to do some jogging and that makes me feel really good.

Journal: *Dr. Wells, this is a difficult question to ask but it does seem relevant to this whole discussion. Do you ever stop and wonder how long you are going to live?*

Wells: Yes, of course. But transplantation is no longer experimentation. There must be over 2,000 heart transplants in North America annually with a five-year survival rate of 75%. I expect nothing from this thing except a good long life. Actually, I am going to go for the Guinness Book of Records.

Journal: *Do you know anything about the donor that has made life possible for you?*

Wells: Not much. I know that he was a 24-year-old man from Atlantic Canada who died in an automobile accident. Through the Organ Donor program I did write to his family indicating my deep sense of gratitude that through their tragic loss I was given a second chance at life. However, I didn't know whether I was writing to a widow with a young family or to his parents.

I can't think of a greater gift a person could make. You have to be someone like myself to really appreciate the whole Organ Donor program.

Journal: *It certainly provokes thought doesn't it. Without a donor we wouldn't be having this conversation today. You wouldn't be here!*

Wells: Absolutely. Organ donation is where it's at! I come down "four square" for the people who have the courage to participate in these programs and for making the decision. It is one thing to sign a driver's license but when the "crunch" comes, are you really prepared to approve organ donation? It takes a great deal of commitment and humanitarianism.

Journal: *Dr. Wells, you may find it interesting to know that when this interview is published, the Journal will carry a pamphlet from the Canadian Coalition on Organ Donor Awareness. It's titled Thanks to You Life Can Go On.*

Wells: All I can say is, I for one owe my life to the program. I encourage everyone to give it serious thought. What greater gift could you give.

I can't think of a greater gift a person could make. You have to be someone like myself to really appreciate the whole Organ Donor program.



Journal: The Journal joins with all its readers to wish you the very, very best for years and years and years. By the way, when are you returning to work?

Wells: Soon!

Journal: What more can be said – Life is miraculous! Δ

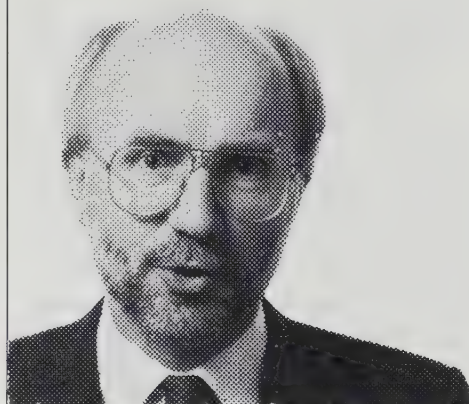


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Drug-Induced Xerostomia

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Xerostomia, also called hyposalivation or dry mouth is defined as dryness of the mouth caused by the reduction of normal salivary secretion associated with salivary gland hypofunction. Saliva production is regulated by the autonomic nervous system giving rise to several causes of xerostomia that may be physical or psychological in origin.

The principal causes of xerostomia are systemic diseases, radiation, and drug therapy. Systemic diseases that diminish saliva production include auto-immune processes such as Sjogren's syndrome, and rheumatoid arthritis. Other systemic diseases such as diabetes insipidus, cardiac failure, and pernicious anemia decrease salivary production because of an imbalance in serum electrolytes. Therapeutic radiation to the salivary glands is commonly seen in cancer patients.

Other possible causes of xerostomia include psychological emotional states, (eg. fear, depression). Decreased mastication can cause reduced saliva flow in individuals primarily on liquid and soft diets. Reduced flow is also observed following orthognathic surgery when jaws are wired for significant periods.¹ In the above cases xerostomia is reversible, unlike systemic causes and radiation therapy.

The widely held belief that saliva production significantly decreases with age is not well supported in the literature. As a single contributing factor aging does not appear to play a major role in the cause of xerostomia.²

The general practitioner may not frequently encounter patients with the above diseases and conditions. However, the dentist and hygienist will encounter patients using a wide range of medication — particularly the aging.²

Over 400 drugs have been identified as potential reducers of saliva flow by acting on the parasympathetic (cholinergic) system.³ More than thirty classifications of prescription and over-the-counter medications are listed in Table I.

Much of the research in xerostomia is aimed at the aging population. In one study cited by Sreebny and Valdin, 1,000 seventy year old men and women were subjects. Results showed that com-

plaint of dry mouth was positively correlated with the intake of anticholinergic drugs, antihistamines, sedatives, and hypnotics.²

In the study by Handelman et al., findings indicated that hyposalivary drug use is common, increases with age, and is highest, but not restricted to, institutionalized patients.⁴

The purpose of this article is to alert dentists and hygienists to this often neglected symptom. Xerostomia is becoming more prevalent in our aging population and is more dentally relevant as natural teeth are retained longer. The article highlights case reports and recommended treatment for drug induced xerostomia.

Symptoms of dry mouth

Patients' subjective reports and objective clinical findings are well documented for both soft and hard tissues.^{2,4,6,7} Soft tissue effects include burning and soreness of the tongue and mucosal areas, painful ulcers, angular cheilosis, parotid enlargement, difficulty with chewing and swallowing, difficulty with wearing dentures, altered sense of taste and smell, and increased incidence of candida infections.

Depending on the severity of the oral symptoms as well as the nature of other systemic problems, the patient may or may not report oral discomfort.

Xerostomia increases the incidence of dental caries particularly at the cervical third of the tooth, as well as on root surfaces. In a study by Kitamura et al. use of xerostomic medications was found to be a high predictor of root caries in the elderly.⁶

Clinical measurement of xerostomia

Salivary flow can be determined by sialometry — the determination of rate of flow of whole saliva.² This simplified procedure is done at least two hours after any food intake, toothbrushing or smoking. Unstimulated saliva is expectorated into a 10 ml cylinder (one design available-Pro-Flow Inc.) every two minutes for six minutes. The patient then stimulates saliva by chewing paraffin wax and repeats the procedure. Normal rate for unstimulated saliva is 0.3 to 0.5 ml per minute; for stimulated saliva 1-2 ml per minute. Flow can be considered xerostomic if less than 0.1 ml per minute for unstimulated and less than 0.5 ml per minute for stimulated saliva.

TABLE I

Xerostomia-Inducing Drugs By Classification

Analgesics	Antipsychotics
Anorexics	Antispasmodics
Anti-acne preparations	Bronchial dilators
Antianxiety Agents	Coronary vasodilators
Antiarrhythmics	Catecholamine synthesis inhibitors
Antiarthritics	Cough and cold preparations
Anticholinergics	Decongestants
Antidepressants	Diuretics
Anti-diarrheal agents	Digestants and enzymes
Antiemetics	Expectorants
Antihistamines	Muscle relaxants
Antihyperlipemics	Antiparkinsonism agents
Antihypertensives	Psychotherapeutics agents
Anti-inflammatory agents	Sedatives
Antinauseants	Antilucer agents
Antineoplastic cytotoxic agents	
Antipruritics	

Source: Table 2, L.M. Sreebny and S.S. Schwartz, A reference guide to drugs and dry mouth. Gerodontology, 5(2), 1986, 77-99.

Without clinical testing, clinicians can proceed to record and treat xerostomia based on the patients' subjective feelings and symptoms in conjunction with objective oral signs.

Case A

A 50-year-old male caucasian presents in the dental clinic with a chief complaint that his fillings have come out and he is afraid of breaking teeth. He also reports a sporadic swelling in the lower right mandible. The medical history reveals that he is a recovering alcoholic being treated for anxiety attacks and a nervous breakdown. The antipsychotic therapy includes 75 mg largactil (chlorpromazine) a day, triavil (perphenazine and amitriptyline) 3x/day. Other daily medications include the antidepressant sinequan (doxepin), the hypnotic noctec (chloral hydrate), antispasmodic artane (trihexyphenidyl HCL), and the analgesic exdol 3x/day for headaches.

The oral examination record includes dry chapped lips with the lower lip bleeding thought to be a result of the antispasmodic artane. No comments about dry mouth are recorded. Radiographic examination reveals advanced periodontal disease in the lower anteriors and generalized moderate periodontal disease in other areas. One periodontal abscess and carious lesions on 27 surfaces are recorded. Approximately six months later, the patient continuing with treatment after summer clinic break reports "that he is not on any drugs and is feeling fine". Treatment continues and approximately 20 months later, the patient reports he is on the verge of a nervous breakdown. Three months later the patient returns to the clinic now taking the antipsychotic haldol (haloperidol) and the antispasmodic benztropine. Treatment for this patient is recorded as highly compromised because of financial problems faced by patients on social assistance.

Case B

A 61-year-old caucasian female presents in the clinic with a chief complaint of wanting "the two temporary crowns on the two maxillary incisors replaced with permanent crowns, and possibly a bite plane to prevent grinding". The medical history includes that she has controlled diabetes, high blood pressure, and a thyroid condition. For these conditions she is taking insulin 2x/day, the diuretic dya-zide (triamterene and hydrochlorothiazide) 2x/day, the antihistamine seldane (terfenadine) 2x/day, the antidepressant asendin (amoxapine) 2x/day, synthroid

once a day for the thyroid condition and kw-zyme 3x/day for indigestion.

Radiographic examination reveals moderate horizontal bone loss, localized areas of advanced bone loss and some vertical defects. Early root caries are detected on three surfaces. Replacement of the temporary crowns and a prosthetic consult are also recorded in the treatment goals. The patient has had regular recall appointments. Since completion of initial treatment approximately four years ago, crown and root caries have been treated on six additional surfaces on four molar teeth. No comments about dry mouth are recorded.

Case C

A 71-year-old caucasian male presents complaining "I don't like the look of my front teeth". The medical history includes that he has had a pacemaker for twelve years. His medications include persantine (dipyridamole) for angina and voltaren (diclofenac) for arthritis.

The oral examination record includes white spots on lingual and buccal areas of right lower posterior alveolar ridge, normally under patient's partial denture. He also has upper partial denture. The quality and quantity of the saliva are checked as normal on the prosthodontic information sheet. Generalized recession and moderate periodontitis are recorded. Fourteen carious lesions are found on eleven teeth. Many of the lesions include cervical caries on the lower anteriors. Approximately one year after the initial exam, two additional areas of caries are charted.

Case D

A 15-year-old caucasian male presents wanting a "check-up and cleaning". He has also been experiencing pain in the left molar area. His medical history includes medications for bad nerves. He is taking the psychotherapeutic agent Xanax 3x/day. Xanax (alprazolam) is a tranquilizer and a benzodiazepine derivative. He is also taking the antidepressant imipramine 3x/day.

The oral examination reveals a slightly inflamed pharyngeal pillar area and localized marginal interdental inflammation. The patient reports a dry mouth believed to be due to his medication. His DMFT is 10. However there are eight areas with questionable occlusal pits for caries observation, and there is generalized decalcification.

Management and treatment

Only in rare cases does drug therapy cause irreversible damage to the salivary glands.^{2,3} The following considerations may be helpful to the patient:

1. In consultation with the physician, the possibility of eliminating or reducing any xerostomic drugs can be discussed.
2. The physician may also alter the dosage schedule. Many xerostomias complain that the condition is worse at the usual reduced saliva periods (at night, in the early morning and between meals).
3. Drug substitution may produce less severe xerostomia.
4. In the event that xerostomia is unavoidable, limited success has been reported with salivary stimulants:^{9,11}
 - An aqueous 1 mg/ml solution of pilocarpine (a cholinergic agonist) in an adult dose of 2.5 to 7.5 mg two to four times a day showed marked improvement in saliva flow. Other cholinergic agents such as bethanechol have produced conflicting results and severe adverse side effects.
 - Citric acid rinses have produced short term effects. However, irritation to soft tissue and potential for enamel erosion limit its use.
 - Sugarless hard candy (e.g. lemon drops), and sugar-free gum can increase saliva flow.
5. Several saliva substitutes or artificial salivas are commercially available, and work better for some patients than others.
6. Frequent water ingestion of up to eight glasses a day is recommended to keep the oral environment moist, especially if water can be sipped.
7. A home care fluoride regimen of daily applications of 0.4% stannous fluoride gel in custom-fitted trays or brushed on the teeth promotes remineralization and reduces plaque and gingivitis.¹² Although effective for plaque reduction, chlorhexidine is not available in Canada in an acceptable flavor solution for long term use. It also has the undesirable side effect of staining.
8. Commercial mouthwashes should be avoided since they have an extremely high alcohol content and further dehydrate tissues. Glycerin swabs and petroleum jelly are anhydrous and should not be used. A lanolin based cream can be used on the lips to prevent drying and cracking.
9. Dietary habits of xerostomic patients

should be analyzed for adequacy and for plaque promoting foods like soft mushy foods or those high in sugar. Firm non-plaque promoting foods encourage increased mastication and saliva flow. Spicy and acidic foods that may irritate dry soft tissues should be avoided. Alcoholic, caffeine and carbonated beverages may further reduce saliva flow.⁵

10. Meticulous oral hygiene must be practised for daily plaque removal using the usual soft brush and floss and any supplemental devices the patient may find helpful.

Summary

Drug induced xerostomia is not uncommon particularly among the aging. This condition can have a rapid devastating effect on the oral environment of these individuals who may already be struggling with other serious health problems.

Early detection by taking an accurate drug history allows the dentist and hygienist to develop a personalized preventive treatment plan, including frequent recalls. Physicians should be consulted as early as possible and be encouraged to refer patients on xero-

stomic medications to the dental office for preventive care.

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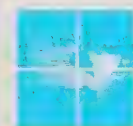
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Computers & CDAnet in a Dental Office

By P. Ralph Crawford, BA, DMD

Computers, hardware, software, insurance forms, assignment, journal editorials, letters, DOMS, CDAnet, and a host of other topics have been assailing the dental community over the past year. Surely by now most of the rhetoric and differences of opinion are history and rational minds are prevailing.

Fortunately, our profession maintains freedom of choice for office management — fully cognizant that **the ultimate decision is not whether we have a computer and CDAnet but how well we provide quality dental treatment.** Nevertheless, the *Journal* was curious how a typical dental office transferred from the comfortable world of pen and paper to the complexities of a computer keyboard.

We visited the office of Dr. John Durran in downtown Hamilton, Ontario. Dr. Durran, a 1953 graduate of the University of Toronto, has been practising in his present location for almost 25 years. One full time and one part-time

associate share the modest suite of offices, not unlike thousands of other family practices across the nation. Three hygienists cover eleven hygiene days a week and each dentist has two dental assistants. Two receptionists perform front desk duties. The practice entered the computer world in January 1989 with the purchase of **DOMS** — CDSPI's Dental Office Management System.

The selection of **DOMS** was no accident. Dr. Durran was on the Management Committee of CDSPI and felt it appropriate he should at least be knowledgeable in the new venture. CDSPI was aware of considerable computer confusion amongst their dental clients. It was a time when dentists were approached by an ever-increasing number of computer companies each proclaiming, "mine is best!". CDSPI determined it was appropriate that an organization — owned by dentists, run by dentists, and for dentists — develop a reasonably priced office management system that met all dentists' needs.

Despite Dr. Durran's years of association with CDSPI, his DOMS set-up is no Cadillac, nor is he a computer whiz. In fact, the entire office management system is very modest. Although DOMS has the capacity to be a full management system, Dr. Durran decided at the outset to go slow and easy. To date, the office has incorporated fully integrated patient records, accounts receivables, and a recall system into their daily routine but have not utilized DOMS' bookkeeping, appointment managing system or word processing capacity. "DOMS is like that," said Dr. Durran. "You can use any part of the package that suits your needs. Eventually, when we are ready, DOMS can do the job."

When Dr. Durran's staff were asked for their reactions to DOMS becoming part of "management" the responses were very positive. The ability of DOMS to identify and organize the recall program with the touch of a computer key is not only convenient but reduces empty chair time. Staff are particularly impressed with DOMS capacity to handle accounts receivable. Previously one staff member spent every Tuesday manually going through ledgers and typing statements. DOMS now handles the entire operation



Fig. 1 Receptionists Lana Manseau (left) and Patricia Tilban process dental claim forms on the DOMS system.

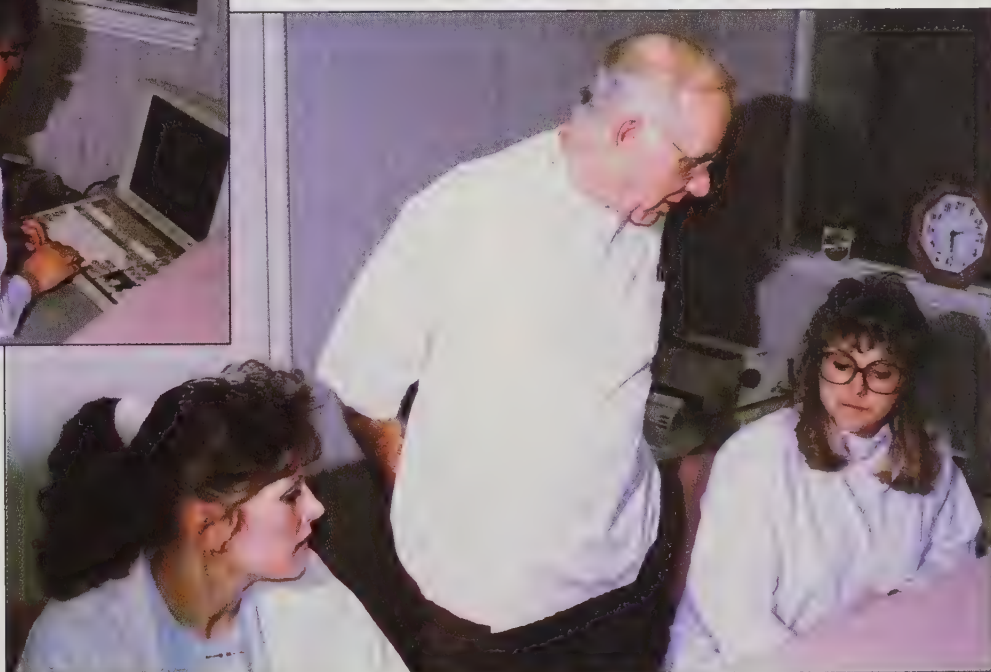


Fig. 2. Dr. John Durran, Hamilton, Ontario, discusses CDAnet start-up with office staff.

in a fraction of the time once a month and automatically notes the account's age — 30, 60 and 90 days. It even prints a reminder notice on the bottom of the statement.

Dr. Durran remarked, "I would be embarrassed to tell you by what amount the accounts receivable has gone down. I always thought our supervision of the manual system was good but there was more money in there than I like to admit." When it became obvious that DOMS was saving staff time, Dr. Durran was asked if he reduced staff or laid people off. He quickly answered, "No, but we did become much more efficient. We engaged our staff in more productive duties. We were able to increase the amount of hygiene time without increasing the amount of support time. Before the computer we had nine days of hygiene time, now we have eleven."

When dentist and support staff were asked if there were any disadvantages to DOMS the response was, "Only in the beginning when we were setting up and learning the system." Prior to placing the computer "on line" every chart (almost 9,000) had to be in-loaded. It was very time consuming.

CDSPI provided a day-long training course for staff before full operation. Over a weekend, all the ledger balances were loaded into the computer and on a Monday morning, D Day, DOMS was operational. "And that is when the CDSPI hand-holding really began", explained receptionist Patricia Tilban. "They have a toll-free number and a hookup to our computer to monitor what we are doing and correct our difficulties. They are very patient and will take us through the process step-by-step. We have never been 'hung-up' because of a lack of service."

CDAnet

Computers in dental offices are not new but CDAnet certainly is. At the time of the office visit last March only eight of the proposed two dozen insurance companies were on-line with CDAnet and only 10 computerized office systems were CDAnet certified. DOMS is one of them. Of course these numbers are expected to rapidly grow in the coming months.

Despite vocal opposition to EDI, particularly in the Toronto/Hamilton area, Dr. Durran did not hesitate to blaze new trails — he has never been the type of person to be intimidated.

We asked why he became involved with CDAnet. The answer was straight forward: "It seemed the way of the future with definite advantages for dentist and

patient." When pressed for specifics Dr. Durran replied, "In our office we do not accept assignment so the big advantage is for the patient. No longer do they have to take their claim form home; no envelope, no forty cent stamp, no mail box. And they get their cheque from the insurance company much quicker. Our staff think CDAnet is great — it eliminates a great deal of the claim form hassle."

Although a large percentage of industrialized Hamilton patients are on dental insurance, Dr. Durran has never accepted assignment and this has caused a slight data collection problem. He explained, "Because assignment is not our way of doing dentistry we did not have insurance data information on our charts. We now have to collect that data and load it into CDAnet."

The office has prepared a brief explanatory memo for their patients about electronic submission of claims. Accompanying the memo is a data sheet and consent form. Once the information is on-loaded into the computer (a once only step) CDAnet is operational. When questioned on the assignment issue and asked about EDI encouraging assignment, Dr. Durran replied, "I don't see why. From the outset it is, or is not, part of the office philosophy. I happen to strongly agree that I have better patient/dentist relationships without assignment, and 80% of my patients are on dental insurance."

Even though CDAnet is very new in the Durran office, receptionist Lana Manseau was impressed with patients' acceptance. "We transmit the claim and immediately know the insurance status. If more information is required it will show up on the screen. If all is in order, 'the cheque is in the mail' and the patient receives a print-out of the transaction."

The office has been monitoring how long it takes patients to receive their cheques. "It seems to be about ten days," says Mrs. Manseau, "But that is much better than the usual three weeks, and with much less trouble than the paper claim routine." The feeling in the Durran office is that once CDAnet is fully operational the turn-around time will be much reduced.

Dr. Durran's parting comment seemed to sum up a great deal of the computer/EDI debate. "One of the biggest advantages I see is that the patients are happy with our system and if they are happy then we are happy. Isn't that what it's all about!" △



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New and Advanced Computer Technology in Dental Education: Introducing the CD-ROM *

by Arto Demirjian, DDS, MScD

Together with the advancement of technology in computer systems and video systems has come an opportunity for educational methodology to develop in a revolutionary fashion. The most important potential for such revolutionary development results from the dramatic advances in these two areas: computer systems and video systems. The prototype of this combined technology (DVI – Digital Video Interactive) * is ready and now in use within the IBM environment. Another component providing the potential for revolutionary advances in educational methodology is the video disk. It has proven possible, for example, by using a videodisk and a second monitor to develop interactive courseware. * However, this interactive courseware requires additional investment and the quality of the images has not approached the quality of digitized images produced on a computer screen.

This is where CD ROM comes into the picture and why the dental faculty at the University of Montreal has developed a new multimedia CD ROM disk on dental and skeletal growth and development. What is a CD ROM? The name literally means Compact Disc Read Only Memory. * Such a disc is the same size as the compact disc used with audio systems but differs from it in its capacity to store not only sound, but also digitized images * (colour and/or black and white). It also has the ability to store 600 megabytes (Mb) * of data (equivalent to 750 floppy disks). It can bring together sound, text and graphics: it is consequently a complete **multimedia** system. The term "multimedia" is well established in the world of computer technology. However, in the world of health sciences, universities and hospitals, only a few pioneers have grasped its potential and experimented with these new technologies for teaching and diagnostic purposes. As such we are still a long way from seeing such approaches develop.

A multimedia approach can be used in education for individualized instruction or tutorials; it has particular potential value as a means of bringing information culled from a large database to a student or practising dentist in a systematic, yet individualized fashion. With a multimedia

educational approach, different resources (x-rays, colour images, explanatory text or even motion pictures of procedures or specimens) can be shown on the same computer screen with all of the advantages of interactivity. **Interactivity** * is a term used to describe the ability of the end user (dentist or student) to adjust and direct the program sequence in accordance with his or her interests or level of knowledge. An interactive CD ROM disc clearly differs from the standard linear video tape presentation which leaves the viewer no choice but to follow the subject, as presented on the tape, from beginning to end. By deliberately providing for optional linkage of different elements of the video presentation, interactivity can be built into a presentation registered on a CD ROM disc.

We believe that a CD ROM multimedia interactive approach is the wave of the future for education in the health sciences and that it will see application in dental, medical and allied health education at the undergraduate and graduate levels. Even more important, it has tremendous potential towards contributing to the continuing education of health professionals. A practising dentist could employ an interactive CD ROM-based program at his own leisurely pace. By the same token, this **personalized** approach permits instruc-

tion to be selected at a level corresponding to students' needs.

At the faculty of dentistry of the University of Montreal, an interactive tutorial and database has been developed on a CD ROM disc. The tutorial presents a full course on the evaluation of dental development and dental age. The database consists of a collection of several thousand of paired hand/wrist and dental radiographs. Over one hundred megabytes of data had been recorded and the CD ROM disc format clearly offered the most advantageous approach to dealing with such a large amount of data. The tutorial and database were developed in both English and French. The University of Montreal CD ROM programs are directed towards teachers, graduate students and researchers in medicine and dentistry, especially those with a particular interest in the field of paediatric growth and development. Clinicians in general dentistry, orthodontics, paediatrics, paediatric dentistry and endocrinology should also find it useful for diagnostic and treatment purposes involving children with growth problems. It should also be a useful tool for physical anthropology and for forensic medicine.

The CD ROM disc presentation is divided into two sections as noted:

1) **Tutorial**: 2) **Database**. Within the

*See Glossary, p. 402.

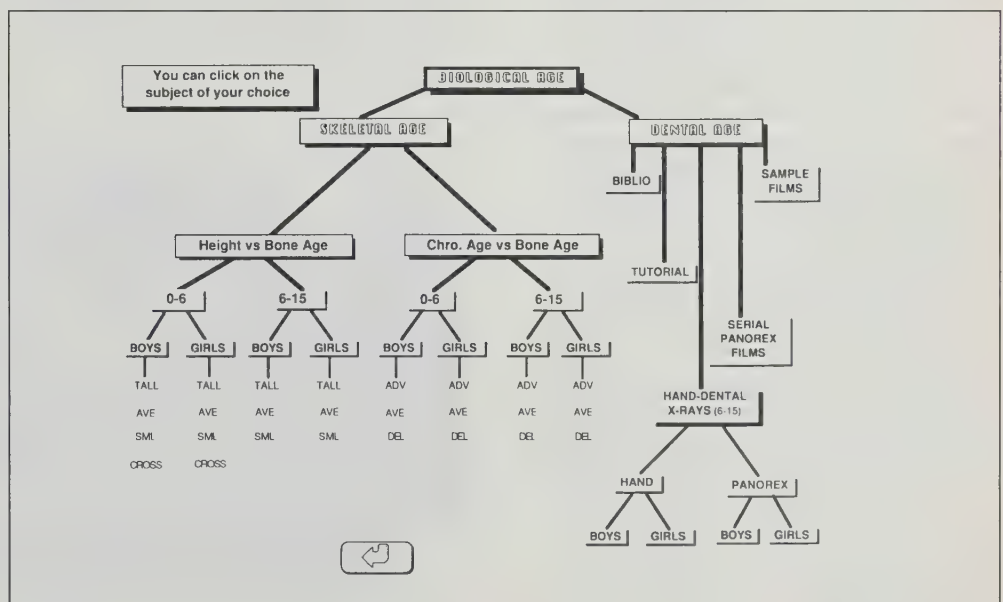


Fig. 1

Tutorial, there is a chapter on Dental Age Evaluation and within the Database, there is a chapter on Stature and one on Chronological and Skeletal Ages (Fig. 1).

The database contains several thousand radiographs (paired hand/wrist and dental radiographs) taken between birth and adolescence. The x-rays represent longitudinal and cross-sectional data collected at the Human Growth Centre at the University of Montreal between 1966 and 1986. The original database includes two cohorts (birth to 6 years and 6 to 17 years) of such longitudinal data. To develop the CD ROM disc interactive presentation, we chose, from the original database, the following series of radiographs (boys and girls are equally represented within the total number of x-rays):

Skeletal age/structure (birth to 6 years)	320 films (longitudinal)
Skeletal age/structure (6 to 15 years)	200 films (longitudinal)
Skeletal age/structure (birth to 6 years)	240 films (cross-sectional)
Skeletal age/structure (6 to 15 years)	300 films (cross-sectional)
Skeletal age/chronological age (birth to 6 years)	240 films (cross-sectional)
Skeletal age/chronological age (6 to 15 years)	300 films (cross-sectional)
Dental age/chronological age (6 to 15 years)	200 films (cross-sectional)
Hand/wrist & panorex films (same children)	200 films (longitudinal)
Several other radiographs for tutorial and demonstration purposes	

In total, 2,000 digitized radiographs are recorded on the CD ROM disc. The x-rays can be viewed either **longitudinally** (x-rays of the same child over a period of several years) or **cross-sectionally** (x-rays of different children of the same age). Hand/wrist x-rays of advanced, average or retarded children are also presented so that skeletal and dental development may be compared. Longitudinal x-rays (hand/wrist and panorex) of the same child may also be reviewed and compared.

The CD ROM disc presentation, accordingly, permits a variety of opportunities to compare the development of the skeletal and dental systems of a cross-section of two cohorts of young boys and girls. In the diagram on page 0, the three chapters of the courseware are presented: 1) dental age; 2) skeletal age vs stature (height); 3) skeletal age vs chronological age. To review each section, the viewer clicks* on the appropriate icon* on the main menu* or clicks on the selection button of the diagram itself.

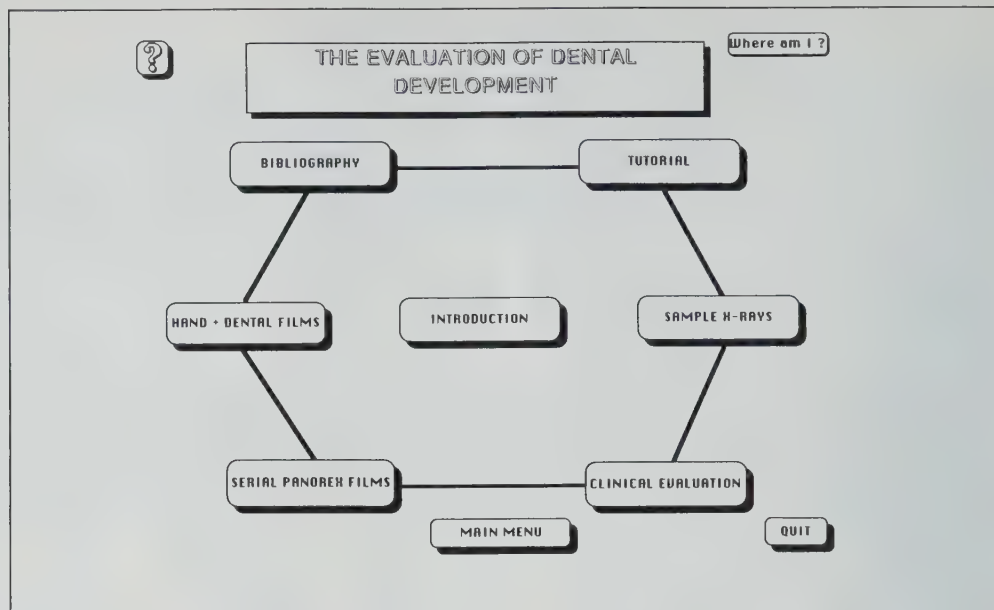


Fig. 2

Dental Age

There are six subsections in this chapter:

- 1) Bibliography;
- 2) Tutorial;
- 3) Sample films;
- 4) Cross-sectional dental radiographs;
- 5) Comparative hand/wrist and dental films; and
- 6) Clinical evaluation (Fig. 2).

Bibliography

Nineteen references have been chosen for this courseware. A short synopsis of each article is provided. If the reader wishes to read the full article, he or she clicks on the article button at the bottom of the reference. Other buttons are employed to permit the viewer to go forward or backward or return to the menu. A print function is provided to allow the viewer to obtain a hard copy* of the complete article.

Tutorial

In this section, the evaluation of dental maturation for determination of dental age by Demirjian's system is explained for uniradicular and multiradicular teeth. Example of x-rays and bony specimens accompany the definition and the diagram of each stage. It is emphasized that the definition should be studied with the help of the diagrams, x-rays and colour specimens.

Sample Films

A number of panorex films (Fig. 3) from Ste-Justine's Children's Hospital are included in the data for the younger cohort (birth to 6 years). Data for the second cohort (6 to 15 years) were obtained from films collected for longitudinal studies by the University Growth Centre. As noted earlier, all hand/wrist and dental radiographs are paired, i.e., they belong to the same child. In this chapter, they are grouped together to give an

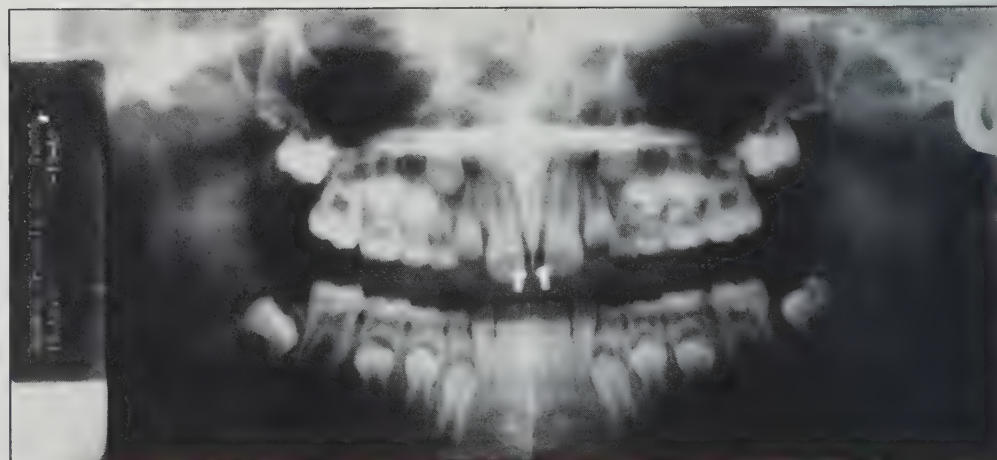


Fig. 3

overall view of the dental development of the deciduous as well as the permanent dentition. The teeth, deciduous and permanent, are identified with their respective numbers. The evolution of each tooth can be consecutively followed.

Panorexexes

This section presents panorex films of children (both boys and girls) with advanced, average and delayed dental development.

Wrist and Dental X-rays

By using the pull-down menus provided at the top of the screen, a student can have access to the dental as well as the hand/wrist x-rays of the same children (boys and girls). The first figure in the pull-down menu represents the file number while the second figure indicates the age of the child. By clicking on one file number, either the dental or the hand film can be viewed. Since both of them belong to the same child, one can compare the dental and the skeletal development. One can also follow the evolution of the development (dental or skeletal) by using the "arrow" button on each x-ray. Additional information is provided, at the bottom of each x-ray on the child's height, skeletal age (S.A.) chronological age (C.A.) and dental age (D.A.). The age range presented in this section is the 6 to 15-year-old cohort.

Clinical evaluation

This section provides a program which should be useful to the dentist. By clicking on the appropriate dental development stages, the program calculates the dental age of the child.

Skeletal Age vs Stature

There are two sections in this chapter: 1) data on children aged 6 months to 72 months and, 2) data on children aged 6 to 15 years. Menus for each group represent the hand/wrist x-rays of tall, average and small children (boys and girls are on different charts). In the section, "Cross Channel," there are x-rays of children "short for their age" in their earlier ages (6 months), but "taller for their age" when a little older (72 months). The x-rays of these children can be viewed either longitudinally or cross-sectionally (Fig. 4).

Skeletal Age vs Chronological Age

There are two sections in this chapter: 1) data on children aged 6 months to 72 months and 2) data on children aged 6 years to 15 years. In this chapter, the



Fig. 4

hand/wrist x-rays of children (boys and girls) are presented cross-sectionally according to the status of their skeletal development — Advanced, Average, or Delayed. By clicking on any button (representing the file numbers), one can view the hand x-ray of the particular child. This data is cross-sectional rather than longitudinal.

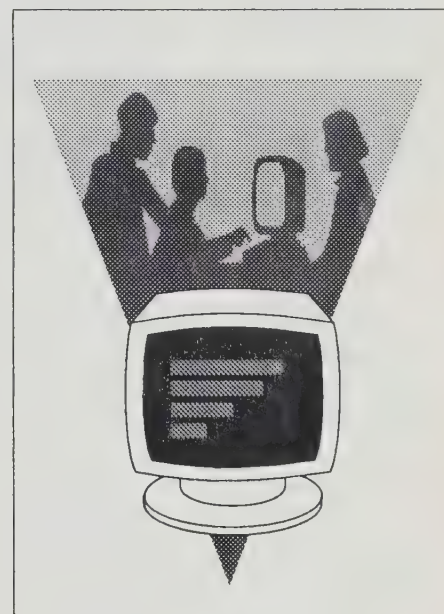
At the bottom of each x-ray, additional data on the height, skeletal age, chronological age and dental age, is again provided. The age range of this sample is between 6 and 15 years.

HARDWARE AND SOFTWARE

The hardware used to develop the CD ROM disc is a Macintosh II with an 80 megabyte disk and 8 megabytes of internal memory (donated for the project by the Apple Canada Education Foundation). The x-rays were digitized with a Proviz digitizer and the colour slides were scanned with a Barney Scanner. Full text articles were scanned with an Apple scanner (again compliments of the Apple Educational Foundation). The software employed was SuperCard 1.0 by Silicon Beach. For the user, the hardware required is a Macintosh II with a colour monitor and a CD (compact disc) drive. In future, we intend to produce the same courseware for the IBM environment, possibly on a DVI (Digital Video Interactive) base. Such technology would enable us to incorporate video motion picture footage in our document to demonstrate some x-ray techniques, or, in the case of anatomy courseware, underdevelopment and dissecting room procedures.

Conclusion

We firmly believe that the future will see a great deal of growth in the development of multimedia courseware for use by individuals in medicine, dentistry and allied health sciences. In addition to all of the advantages noted earlier, presentation of radiographic data in the CD ROM disc format permits longitudinal collections like the Growth study collection (E.G. Burlington & Montreal) to safeguard original images while providing access to professionals. Such presentations definitely require time and energy on the part of developers, as well as development funds. University and hospital administration should become increasingly aware of the potential of the multimedia approach. Finally, consideration will need to be given to the reorganization of curricula if we are to take full advantage of interactive teaching models in future. Δ

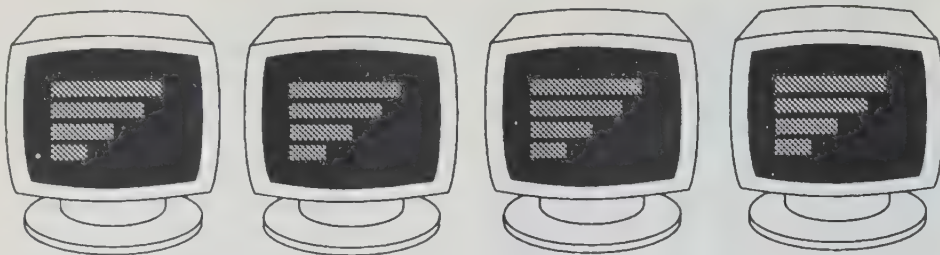


Acknowledgements

The University of Montreal CD ROM interactive video disc project was made possible through a generous equipment grant from the Apple Educational Foundation of Canada and by financial grants from the Canadian Fund for Dental Education (CFDE), the Alma Mater Society of the Faculty of Dentistry, University of Montreal and a number of other dental and computer suppliers.

Special thanks also to Richard Tanguay for programming in SuperCard, first year dental student Eric Fortier for digitizing the x-rays and to Brian Henderson for revising the English manuscript and for his help from the beginning of this project.

Prepared for publication by Cynthia D'Errico, M.A., Staff Writer, CDA.



For ease of reading, the *Journal* has provided a **Glossary of Computer Terms (*)**

- *Clicks:** By using a computer appliance called a "mouse" (a hand-sized box with buttons on it), users click on the buttons to access information from a computer.
- *Disc; Disk:** A "disk" is a flat rectangular item that can be entered into a slot in the main computer. A disk is full of files and information that the user may have borrowed from someone else or may have copied from another database.
A "disc", like a record album or discus, is shaped like a phonographic object, only much smaller — hence the term "compact disc". "Disc drive" is similar to a cassette recorder.
- *Digitized Images:** "Digitized" refers to an image or graphic that has been scanned or reproduced by the use of computer technology. The computer converts an array of dots into an image.
- *Digital Video Interactive (DVI):** As the article indicates, a DVI system combines the best of computer technology, or digitization, with video technology to provide the user with customized control of the information he/she needs.
- *Hard Copy:** This is computer jargon for a paper or printed-out copy of information.
- *Hardware:** This refers to the actual, physical equipment of a computer system.
- *Icon:** Usually found in Apple computers rather than IBM computers, an icon is a tiny graphic symbol representing a file or document the user has named and stored in the computer's memory.
- *Interactive Courseware/ Interactivity:** Courses on a computer setup to allow the user to adjust, adapt, and customize the material or information to his/her own learning pace. Interactivity is one of the very latest advances in computer technology.
- *Megabytes:** Units of measurement of computer memory and storage.
One byte = : One megabyte (Mb) = :
One kilobyte (Kb) = .
- *Menu (main; pull-down):** A menu is a boxed selection of operations from which the user can choose what he/she wants to do. Main menu have sub-menus, called "pull-downs" or "drop-downs" menus because they "drop out" of the main menu which is usually at the very top of the computer screen.
- *Read-only Memory:** Refers to memory whose contents can be read but neither changed nor deleted by the users. Files created with regular memory, in contrast, can be changed at any time by anyone accessing them. CD-ROM = Compact Disks with Read Only Memory.
- *Software:** These are the programs entered into a computer's hardware to allow the user to write, draw, calculate, etc.



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Invasion of bacteria in enamel carious lesions

Robert P. McCabe, BSc, MSc
Vincent W. Adamkiewicz, PhD
Drasko D. Pekovic, MD, MSc, PhD
Montreal, Quebec

ABSTRACT

A review of recent findings concerning enamel carious lesions is presented. This lesion represents the initial phase of dental caries and is characterized by a demineralization of the subsurface enamel caused by acids of the plaque bacteria. *Streptococcus mutans* has been described as the etiologic agent of the dental caries and the most acidogenic plaque bacteria. Morphological studies have shown an invasion of microorganisms inside the enamel carious lesion. Unfortunately, several technical problems are associated with such studies. The identification of the invading bacteria has not yet been achieved. The future identification of bacteria inside the subsurface enamel lesions will represent an important step in the prevention of the carious progression.

SOMMAIRE

Une telle liaison représente la phase initiale de la carie dentaire et est caractérisée par une déminéralisation de l'émail en sous-surface causée par les acides de la plaque dentaire. Le streptococcus mutans a été décrit comme étant l'agent étiologique des caries dentaires et la plaque dentaire la plus acidogénique. Des études morphologiques ont révélé une invasion de micro-organismes à l'intérieur de la lésion cariée de l'émail. Malheureusement, plusieurs problèmes techniques sont liés à de telles études. L'identification de la bactérie en question n'a pas encore été réalisée. L'identification future de la bactérie à l'intérieur des lésions en émail en sous-surface constituera l'étape importante dans la prévention de la progression des caries.

Introduction

Dental caries may be defined as a bacterial disease of the calcified tissues of the teeth. The cariogenic process is a gradual destruction of the inorganic and organic substances of the tooth.¹ Constituents of the microflora are

closely involved in the initiation of the caries. The first step is a subsurface disintegration of the enamel. This disintegration results from a loss of minerals in the enamel caused by the acids from the superficial dental plaque bacteria. The enamel carious lesion can be detected as a white spot on the tooth surface.^{2,3}

Very few studies in cariology have attempted to demonstrate the presence of bacteria in the enamel subsurface lesion of the white spot. Such lesions have been reproduced experimentally using acidified gels, but in the absence of microorganisms.^{4,5} On the other hand, experiments with the Scanning Electron Microscopy (SEM) technique did demonstrate the presence of bacteria inside the enamel and dentine in the absence of a cavitation at the surface.^{4,6,7} A possibility exists that microorganisms may remove enamel by a direct lacunar resorption.^{4,7,8} However, the invading bacteria have not yet been identified. The classical experiments of S. Edwardsson⁹ might be mentioned here. He studied the bacteria in the advancing edge of carious dentine lesions by obtaining samples of ground tooth structures while approaching towards the lesion from the pulpal direction. His technique might possibly be applied to the bacteriology of the white spot.

The purpose of this review is to present an up-to-date summary concerning the bacteriological studies of the white spot. Some related technical problems will also be discussed. The demonstration of the presence of bacteria inside the white spot will lead eventually to their specific and quantitative identification.

Role of plaque bacteria

Experiments with germ-free rats^{8,10} and with humans¹¹ indicate that bacteria seem to be essential for the development of enamel caries. Bacteria are present in the human dental plaque which is found on most enamel surfaces.¹² Plaque consists predominantly of bacteria embedded in an amorphous matrix derived from salivary mucoids and extracellular bacterial polysaccharides.¹³ Supra-gingival plaque shows a variety of bacteria species. Dental plaque builds up in complexity over a

period of days from an early predominantly streptococcal flora, to a highly mixed microbial mass which appears to be predominantly filamentous. In the mature plaque, some coccal forms are located between the filamentous bacteria similar to a corn-cob arrangement.¹ Thus, it appears that a fairly wide range of bacteria could invade the white spot lesion. However, for the past several years, research in cariology has been mostly focused on a single organism, the *Streptococcus mutans*.

S. mutans is considered to be a prime candidate for the initiation of enamel carious lesions. They are numerous in plaque associated with white spot lesions. Higher proportions of *S. mutans* are found in plaque sampled over white spot surfaces than in plaque from caries-free sites.¹⁴⁻¹⁶ *S. mutans* has the ability to cause extensive caries in animal models and is very acidogenic.¹²

Acids and their effects

In general, organic acids are produced in the oral cavity and in the dental plaque from dietary carbohydrates and, in particular, from simple saccharides. The acids contribute to the demineralization of the enamel, especially in those areas where it displays congenital or acquired structural or crystallographic defects.

Although various strains of oral streptococci show an acidogenic potential at a pH of 6 to 7, only *S. mutans* appears to produce acid at the low values of about pH 5.^{12,17} Lactic and possibly formic acids are the main active substances responsible for the enamel dissolution and for the formation of white spot lesions.^{18,19}

The white spots are the result of a subsurface dissolution of enamel crystals by the acids. This dissolution may produce important pathways for the diffusion of dissolved minerals in and out of the enamel along the intercrystalline spaces. Earlier ultrastructural studies suggest that enamel caries develop as a diffuse demineralization accompanied by an increase in the intercrystalline distances.²⁰ However, recent studies indicate that changes in crystal structure

may be due to both demineralization and reprecipitation of minerals.^{21,11} Thus, the white spot lesion would be the result of a dynamic series of intermittent demineralizations and remineralizations rather than a simple continuing dissolution.^{11,20,22}

Histopathological features

Established white spot lesions processed by the ground section technique appear cone-shaped under the polarized microscope. The broad base of the cone is facing the enamel surface and the apex points towards the dentino-enamel junction (DEJ). The lesion is divided into four zones, each with different optical properties.²⁰ There is a translucent zone at the inner advancing front of the lesion which represents the first observable change in the enamel structure. Superficial to that, lies a dark zone apparently formed by a reprecipitation of minerals. The body of the lesion represents the third zone, which contains the largest proportion of carious enamel. This zone shows a considerable loss of minerals and is located between the dark zone and the undamaged enamel surface. The relatively unaffected surface is the fourth zone; it represents an area of reprecipitation of minerals derived both from the plaque and from the demineralized zones located deeper in the lesion.^{11,22,23}

Animal studies

Microorganisms have generally been thought to invade dental enamel only after a cavity has first been formed by acid dissolution. However, a SEM study of non-cavitated rat enamel carious lesions demonstrates the presence of numerous cocci and a few rods located in the interprismatic spaces at varying depth throughout the enamel.⁴ Bacteria have also been seen in large numbers along the DEJ where a lateral spreading of the bacteria also occurs. Several single bacteria were noticed as well in lacunae inside the enamel crystals, suggesting that actions similar to osteoclastic bone resorption might be taking place. It was also suggested that the invading bacteria may be able to generate harmful acids inside the dental structures using the organic matrix of the enamel or dentine as a nutritive substrate.⁴ Should this be so, the cariogenic progression of enamel caries would be difficult to turn around. Once the invading bacteria reach the deeper dentinal structures, irreversible damage to the internal tooth structures could occur.

Thus cavitation does not appear to be a prerequisite for the infiltration of bacteria.

Unfortunately, invading microorganisms have not been specifically identified. Recent SEM studies on monoinfected germ-free rats were undertaken to investigate the ability of *Streptococcus mutans* and *Lactobacillus salivarius* to invade the subsurface enamel. Both species were found in the enamel and dentine. Numerous colonies were also seen along the DEJ. *L. salivarius* apparently produced more advanced carious lesions than did *S. mutans*. This supports the concept of streptococci as caries initiators and lactobacilli as caries progressors.^{8,10} However, the animal observations may not necessarily be similar to the results obtained in humans.

Human *in vitro* studies

Attempts have been made at reproducing experimentally in human teeth, the subsurface carious lesions. However, such artificial enamel caries did not duplicate all of the structural aspects of an *in vivo* white spot. The *in vitro* production of enamel caries involved the use of acidified gels in the total absence of microorganisms. The use of the acid solutions did produce structural irregularities in the lesion. However, the surface zone and the dark zone, resulting from the remineralization, could not be simulated.^{5,24} Obviously, a different experimental approach must be used for the investigation of human enamel carious lesions which develop in the presence of bacteria. Indeed, the use of the microbial analysis and of the *in vivo* SEM method have been more adequate.

Microbiological analysis

The microbial analysis technique would consist of sampling parts of the subsurface carious lesion and evaluating their microbial content by using one of the several bacteriological identification procedures. Still, this method may produce many artefacts. Technical problems such as sampling, culturing and contamination are sometimes difficult to deal with.²⁵ Despite the difficulties, this type of microbial investigation could provide useful information about the microbiota inside carious lesions. However, the validity of this technique has not yet been proven.

Morphological studies

Human white spot lesions were examined by the SEM technique in order to demonstrate the invasion of bacteria inside subsurface enamel lesions. The penetration of microorganisms through

the human enamel, their spreading at the DEJ and their growth in the dentinal tubules towards the pulp have been reported. Numerous single round and a few rod-shaped bacteria have been seen inside lacunae in enamel crystals. These bacteria might have the ability to destroy enamel structures in the way osteoclasts can dissolve bone tissue. Bacterial colonies were also noticed within enamel and dentine.^{6,7,26}

However, SEM studies cannot be expected to give a complete structural description of the morphology of enamel caries and of the various types of demineralization zones. In the cases reported above, the SEM technique was used to study exclusively fractured surfaces of white spot lesions. The fracture creates various artefacts and permits only the observation of one plane through the lesion. If the fractured surface runs outside the main zone of bacterial invasion, the cracked plane will unfortunately not show a microbial penetration. This makes it difficult to quantify the prevalence of bacteria inside enamel lesions. This disadvantage would also apply to the ground section techniques. Contamination problems may also complicate the SEM technique.^{4,6,7}

A three-dimensional description of the lesion and the information on its finer structural changes could be obtained by transmission electron microscopy using ultrathin sections. However, ultrathin sections of mineralized enamel are difficult to produce without artefacts.²³

Thin sections of white spot lesions produced in series would represent an interesting alternative technique in visualizing the invasion of bacteria. However, serial thin sections of mineralized enamel are also quite difficult to produce. Histotechnical problems related to very hard calcified tissue, especially enamel, are not easy to overcome. Therefore, in order to perform thin serial sections, the enamel has to be decalcified. However, the microscopic observation of white spot lesions becomes difficult after the decalcification of enamel by the classical procedures. A special decalcification method is needed to soften the enamel and dentine before producing the thin sections. A study using the Brain technique for the decalcification of enamel has demonstrated the presence of bacteria inside the subsurface lesion. However, many preparations were apparently lost during decalcification and sectioning procedures. Consequently, the quality of serial sections of white spot lesions depends primarily on the quality of the decalcification procedure.²⁷

Immunohistochemistry

The specific identification of invading bacteria by immunohistochemical methods involves several technical difficulties. Immunospecificity may be easily altered during tissue processing and serial sectioning. Decalcification, which represents a critical step, may also seriously modify antigenic specificity. Thus, immunoidentification of bacteria inside subsurface lesions appears to be technically unrealizable for the moment.

Initiation and progression of enamel caries

The structural changes at the enamel surface could possibly explain the presence of bacteria inside subsurface lesions. Plaque bacteria could infiltrate the lesion as intermittent demineralization and remineralization occurs in the enamel surface. A slight dissolution of the enamel surface could trigger a bacterial invasion through the superficial openings. However, should such openings become remineralized, their role as a route of entry would not be permanent. Bacteria would also be able to penetrate through developmental and other irregularities and microdefects in the enamel. A few SEM pictures indeed suggest that this may be the case.^{4,8,10,28}

The progress of enamel caries depends possibly on the types of invading bacteria. Coccus-like organisms could be present in higher numbers than rod-shaped bacteria inside white spot lesions. Coccal forms would be important in the initiation of enamel caries. Rod-shaped bacteria would be responsible for the carious progression of the white spot.

Conclusion

The identification of bacteria inside the enamel lesion would represent an important step in stopping the progression of the lesion and preventing cavitation. The type of bacteria found inside the lesion may vary significantly according to the degree of demineralization. Different types of dominant bacteria could be found at various developmental stages of the white spot. Microorganisms like streptococci could be associated with the initiation of enamel carious lesions and lactobacilli could correspond to the carious progression of the white spot. Still, several more microbial analyses and bacterial identification studies of enamel lesions are required before deciding that *S. mutans* is the etiologic agent of enamel caries. Δ

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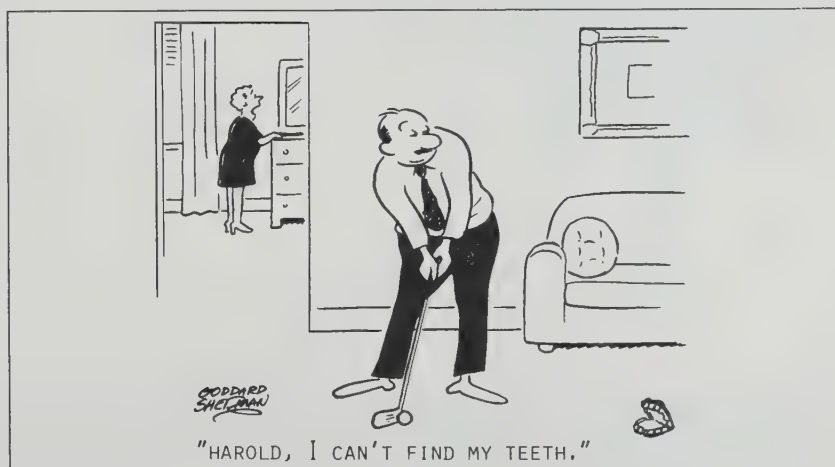
Dr. Adamkiewicz is Professor, Department of Microbiology and Immunology, Faculty of Medicine, University of Montreal.

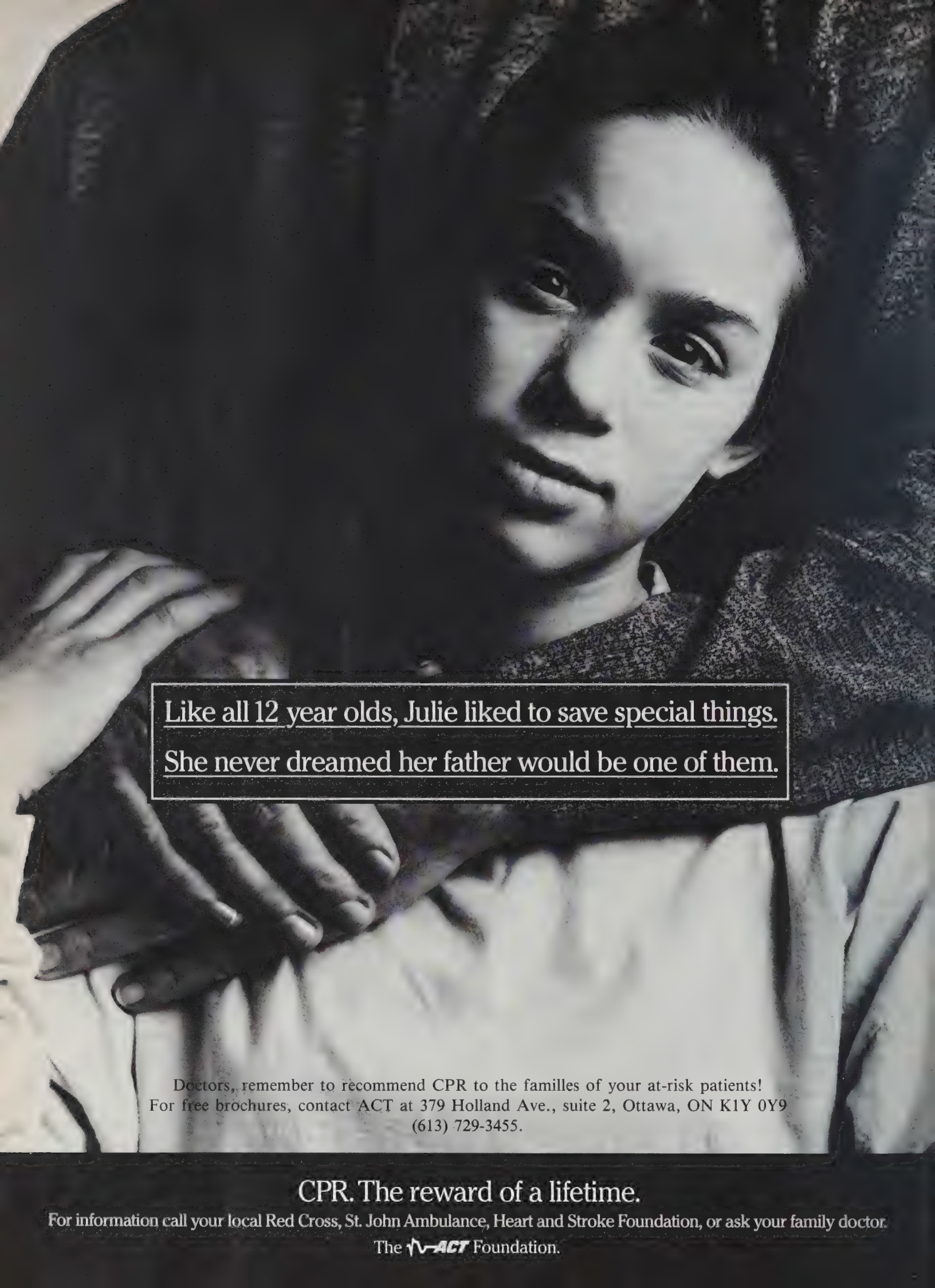
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Radiographic findings in a group of elderly patients at a Canadian dental school

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ABSTRACT

The panoramic and intraoral radiographs of 154 elderly dental patients aged 65 years and older were assessed at the College of Dentistry, University of Saskatchewan, Saskatoon. Thirty-seven per cent of the patients were completely edentulous, and 61% were partially edentulous. In the dentate group, 87% had evidence of at least one carious tooth, and all had radiographic evidence of alveolar bone loss. The incidence of periapical inflammatory lesions and root remnants was relatively high.

SOMMAIRE

Les radiographies panoramiques et intra-buccales de 155 patients âgés de 65 ans et plus ont été évaluées au Collège de dentisterie de l'Université de la Saskatchewan à Saskatoon. Trente-sept pour cent des patients étaient complètement édentés alors que 61 % l'étaient partiellement. Parmi ces derniers, 87 % avaient au moins une dent cariée, et tous avaient des preuves radiographiques de perte d'os alvéolaire. Les cas de lésions inflammatoires périapicales et de restants de racines étaient relativement élevés.

Introduction

The dental status and treatment needs of the elderly living in different locales in Canada have been reported.¹⁻³ There is, however, very little information on the oral health status of the elderly residing in the province of Saskatchewan.⁴

As more teeth are being retained by people in our aging population, the management of caries and periodontal disease will become increasingly important clinical concerns for many dental practitioners. Such concerns will also be shared by dental schools, since there is evidence to indicate that the average age of patients attending dental school clinics is increasing.⁵ Increasing emphasis on geriatric dentistry in the undergraduate dental curriculum has resulted in surveys

assessing the treatment needs of elderly dental school patients.⁶⁻⁸ However, there is little specific information of radiographic findings in this population. Radiographic examinations could yield underlying pathological changes that may influence treatment, and which might not have been detected during a visual clinical examination.

The aims of this study were to record the incidence of positive radiological findings in a group of elderly patients attending the University of Saskatchewan dental clinic, and to create a basis for comparison for future research.

Materials and methods

Radiographs of all patients 65 years of age and older who were accepted for treatment at the undergraduate clinic of the College of Dentistry in the calendar year of 1987 were reviewed.

All patients in this group had had a panoramic radiograph and periapical radiographs of all remaining teeth taken at the time of their initial appointment. Bitewing radiographs had also been taken

of patients who had a sufficient number of remaining posterior teeth to warrant it.

Radiographic parameters assessed were: number of teeth present, the presence of periodontal bony defects, the degree of horizontal periodontal bone loss (using the method of Schei et al.⁹), dental caries, periapical inflammatory lesions, root remnants (these were not included as teeth present), impacted teeth, foreign bodies, and other radiographic lesions (including cysts, tumours, etc.). The radiographs were interpreted by one examiner.

Results

Radiographs from 154 patients were examined (54% male, 46% female, average age 69.8 years; range 65-87 years). Fifty-seven patients (37%) were completely edentulous, ninety-four (61%) were partially edentulous (missing at least one tooth anterior to or including the second molar in at least one quadrant), and three were fully dentate (having at least the central incisor to the second molar present in all quadrants).

TABLE I

Radiographic abnormalities associated with clinically erupted teeth (Total number of clinically erupted teeth in 97 partially or fully dentate patients = 1711)

Abnormality	No. of teeth involved	Percentage of teeth involved	No. of dentate patients	Percentage of dentate patients
Coronal caries	373	21.8	84	86.6
Marginal bone loss:				
a) none or negligible	562	32.8	68	70.1
b) ≤ 50%	1101	64.3	95	97.9
c) > 50%	48	2.8	16	16.5
Vertical bone loss	108	6.3	63	64.9
Interdental two-walled defects	51	3.0	23	23.7
Furcation involvements	179	—	54	55.7
Periapical inflammatory lesions	72	4.2	35	36.1

TABLE II

Other radiographic abnormalities

Abnormality	No.	No. of all patients	Percentage of all patients
Root remnants	50	29	18.8
Periapical inflammatory lesions (root remnants)	7	5	3.2
Impacted teeth	9	7	4.5
Cysts	1	1	0.6
Foreign bodies	2	2	1.3

The mean number of teeth in the partially edentulous patients was 17.6.

Radiographic abnormalities associated with clinically erupted teeth are shown in Table I. The incidence of periodontal bone loss in dentate patients was high, although most teeth (64.3%) had lost only 50% or less of their alveolar bone; only 2.8% of all teeth had lost more than 50% of their alveolar support in relation to at least one interproximal surface. There was furcation involvement in 179 of the multirrooted teeth. Evidence of vertical bone loss and interdental two-walled defects was not a common finding.

Periapical inflammatory lesions (rarely osteitis) were seen in 4% of all teeth; 35 (36%) of the patients with teeth had at least one tooth with a periapical lesion. Almost 22% of all teeth were carious; 84 (86.6%) of all dentate patients had at least one carious tooth.

Other radiographic abnormalities are listed in Table II. One patient had radiographic evidence of a cyst in the maxillary midline which he was previously unaware of. This was surgically removed and histopathologically diagnosed as an odontogenic keratocyst. A total of 50 root remnants were discovered in 29 patients, but only 7 of these had evidence of periapical inflammatory lesions. The incidence of periapical inflammatory lesions associated with root remnants and of impacted teeth was low.

Discussion

There are few reports in the literature of studies which closely resemble the present investigation. Previous studies at dental schools have involved analysing the diagnostic yield of panoramic radiographs of edentulous dental school patients,¹⁰⁻¹³ comparing findings on panoramic radiographs of different patient populations,¹⁴ assessing the diagnostic yield of the panoramic radiograph

versus intraoral radiographs,¹⁵ comparing the efficacy of panoramic and intraoral radiographs in treatment planning of dental school patients,¹⁶ or comparing panoramic and intraoral films in the diagnosis of dental caries for dental school patients.¹⁷ Other studies have been done of the diagnostic yield of panoramic radiographs of edentulous patients at a government-sponsored nursing care facility¹⁸ and a Veterans' Administration outpatient clinic,¹⁹ and of the incidence of dental pathosis on panoramic radiographs to assess the risk of bacteremia from dental causes in patients admitted to hospital for total hip replacement.²⁰ None of these studies concentrated solely on patients aged 65 years or older.

The radiographic abnormalities discovered in the present study are similar to those reported by previous investigations at dental schools and other types of institutions, but the incidence varied in some cases, probably due to local differences in the frequency and quality of previous dental treatment in the study groups. In addition, as indicated above, most of the previous studies assessed only panoramic radiographs of completely edentulous subjects, and not all patients were in the same age range as those in the current study. Compared to the current investigation, lower incidences of root remnants and impacted teeth were reported by Lloyd and Gambert¹⁸ and Garcia et al.,¹⁹ while higher incidences were reported by Spyropoulos et al.¹⁰ and Dias and Jiffry.¹³ The results of Dhooria¹¹ showed similar incidences of these abnormalities as the current study, while Keur et al.¹² reported a greater occurrence of root remnants and periapical pathosis associated with root remnants, but an equivalent incidence of impacted teeth. Finkelstein and his associates' study,¹⁴ conducted in South Africa of panoramic radiographs of a random group of dentate and edentulous dental teaching hospital patients,

revealed higher incidences of impacted teeth and root remnants, but an almost equal incidence of periapical lesions when the results are compared with the current study. The report of Lindqvist et al.²⁰ revealed a higher incidence of caries, periapical infection, and periodontal bone loss than the group in the current investigation; the extent of carious involvement and periodontal bone loss was also more severe. In all previous studies, the incidence of radiographic findings of only patients over 65 years of age could not be determined from the reported data, and therefore direct comparisons between these surveys and the current one are not possible.

There are few reports on radiographic findings on intraoral radiographic series of elderly patients.¹⁵⁻¹⁷ Not all of the patients in these studies were exclusively in the 65 years or older age group. Hoover and Packota⁴ performed a radiographic study similar to the investigation reported here in 51 patients aged 65 years or older who were day patients or inpatients at a teaching hospital. Many of the findings in the two studies were similar, although when comparing the patients with teeth, there was a higher incidence of caries, periodontal bone loss, and periapical inflammatory lesions in the hospital patients. The hospital group had a greater incidence of complete edentulism than the dental school group. Most of the hospital patients were less ambulatory and independent than the dental school patients, and perhaps not as able to carry out oral hygiene procedures as effectively. Also, a large percentage of the hospital group had not seen a dentist regularly. These factors may account for the differences seen in the radiographs of the dentate patients in the two groups.

Ahlqvist et al.¹⁵ were of the opinion that panoramic radiographs can be useful in epidemiological studies of oral health. Although the panoramic radiograph has been shown to demonstrate numerous positive radiographic findings,^{10-15, 18, 19} it has been concluded by at least one group of investigators that few of these positive findings materially affected treatment decisions.¹⁹ When serial panoramic radiographs are studied over a period of time, a significant change in any of the initial positive findings is rarely observed.^{18, 19} Nevertheless, the probability of positive findings on panoramic radiographs of edentulous patients is high in patients in the seventh decade,^{13, 21} and therefore, this type of radiograph appears to be of value in diagnosis of the elderly individual.

The selection criteria for panoramic

and intraoral radiography for dentate and edentulous adult patients in the present study were similar to those recommended by the report of the Center for Devices and Radiological Health in the United States.²² An initial radiographic examination, based on a history and a clinical examination, is generally required to provide baseline diagnostic information for the elderly dental patient. Periodic radiographic examination for occult pathosis in the asymptomatic patient, however, cannot be justified.²² This view is supported by some of the papers reviewed above.^{18,19} The need for radiographic selection criteria specifically for elderly patients should be investigated, and should include those who are chronically mentally or physically debilitated.²³

Although the efficacy and limitations of the panoramic film have been investigated for edentulous patients of all ages, further study is needed to determine the efficacy of intraoral radiographs, with or without panoramic radiographs, in diagnosing and treating elderly dentate individuals. Δ

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Dr. Bell was a fourth year dental student at the time of the investigation.

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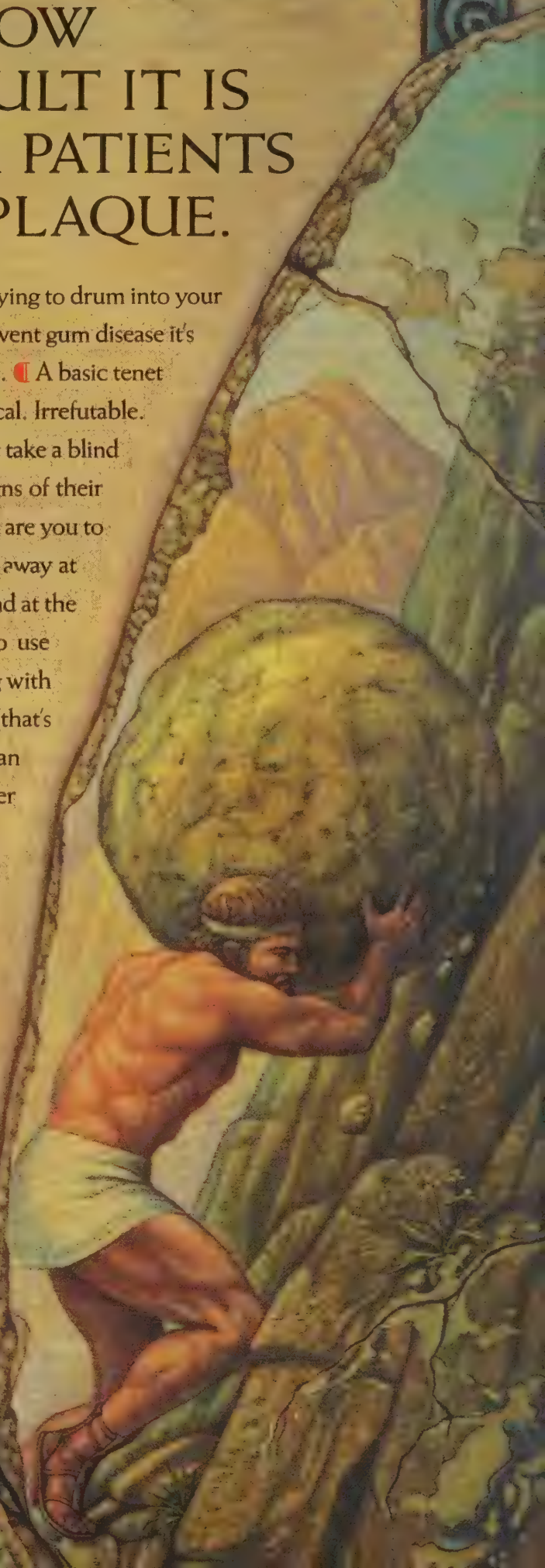
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Diseases of the salivary glands: A review

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ABSTRACT

The normal function of major salivary glands as well as thousands of minor ones is an important determinant of oral health. Many diseases of these glands are common, yet not often appreciated by the dentist or his staff. This paper reviews common and some less common diseases of salivary glands, including developmental, hypertrophic, reactive, autoimmune and neoplastic conditions.

SOMMAIRE

La fonction normale des principales glandes salivaires ainsi que de milliers de plus petites, est un déterminant important de la santé dentaire. Nombre de maladies de ces glandes sont communes, et pourtant pas suffisamment évaluées par le dentiste ou son personnel. Le présent document passe en revue les maladies courantes et quelques-unes moins courantes de glandes salivaires, notamment les conditions développementales, hypertrophiques, réactives, autoimmunes et néoplastiques.

Introduction

Saliva is mainly produced by three paired major salivary glands: parotid, submandibular and sublingual, as well as innumerable minor salivary glands of the oral cavity. Saliva is of paramount importance for healthy oral function, for prevention of many oral diseases including dental caries, and for patients' tolerance of oral appliances. Dental personnel are well aware of the variability in saliva production — from drooling to dry mouth, and should be equally aware of other pathologic conditions caused by, or associated with salivary glands. This review covers a wide range of salivary gland diseases that may be encountered by dentists.

Non-neoplastic Lesions of Salivary Glands

1. Development Lesions: Developmental alterations such as agenesis, ductal

atresia or stenosis are rare. Clinical symptoms vary from no apparent effect, localized defects, to severe dry mouth when major glands are missing.¹

1a) Hyperplasia: Hyperplasia of the intraoral salivary glands is occasionally seen, especially in the sublingual glands of the plicae sublingularis in the floor of the mouth. It is often seen in suckling infants in which the plicae seem to be extraordinarily large. The hyperplasia is bilateral and physiologic in nature. In time, the apparent disproportion disappears without treatment. Occasionally, a similar appearance of the plicae appears in adults, usually as a physiologic reaction to excessive blowing as seen in trumpet players or glass blowers. A similar hyperplasia is occasionally seen on the palate, forming an asymptomatic small submucosal nodule mimicking a neoplasm.¹

1b) Developmental Lingual Mandibular Salivary Gland Depression (Static Bone Cavity): This variant of normal is an uncommon, incidental finding on periapical or panoramic radiographs. It is rare in children. A non-changing, well-defined radiolucency, sometimes with sclerotic borders, is seen in the posterior mandible, below the mylohyoid ridge. It represents a shallow invagination of the lingual surface of the mandible by the lateral aspect of the submandibular gland. Sialography is sometimes used to confirm the diagnosis. The area is asymptomatic and there is no cortical expansion. No treatment is necessary. The sublingual gland can similarly cause a concavity in the lingual cortex of the anterior mandible, but this is above the mylohyoid muscle. Here, it can be difficult to distinguish from apical periodontitis or periapical cemental dysplasia.¹

2. Inflammatory Lesions: Inflammation in the salivary glands can be caused by many different agents, including microorganisms, trauma, stones, and radiation therapy.

2a) Viral Infections:

- **Mumps:** Mumps is a contagious infection, caused by a paramyxovirus. Though endemic, it is seen mostly

in the spring. Usually children are affected. Fever, headache, chills, and malaise accompany pain and swelling of salivary glands — usually parotids. Acute symptoms last about 10 days. The virus is spread via droplets of saliva. Potential complications include orchitis, epididymitis, oophoritis and mastitis, especially when adults are affected. Life-threatening complications, such as pericarditis and meningoencephalitis, are rare. The incidence of mumps decreased subsequent to the introduction of a vaccine in 1968.¹⁻³

- **Cytomegalovirus:** This herpes virus causes a common, asymptomatic infection in the salivary glands of many adults. It is usually acquired in childhood. When acquired in utero, it can cause encephalitis, chorioretinitis, nervous system degeneration, and stillbirth. Infection of the salivary gland can serve as a reservoir for cytomegalovirus infection in AIDS, in other immunosuppressed patients, or can cause a mononucleosis-like illness in immunocompetent individuals. This virus has been implicated as a possible cause of Kaposi's sarcoma.^{1,3}
- **Others:** On occasion, other viruses can infect salivary glands. These include the coxsackie, echo, influenza, parainfluenza, choriomeningitis and herpes viruses.^{1,3,4}

2b. Bacterial Infections: Bacterial infections of salivary glands most commonly involve the parotids. One exception is in cystic fibrosis, where the submandibular glands are most commonly infected. Infections are usually associated with dehydration and decreased salivary flow. Acute flare-ups are characterized by rapid onset of reddened, swollen, painful glands, often with pus exuding at the ductal orifice. Patients may be feverish with leukocytosis. A common type occurs a week or two following major surgery on an elderly patient (postsurgical parotitis). The offending bacteria are usually staphylococci or streptococci.

Sometimes, a chronic relapsing streptococcal infection, secondary to strictures or stones in the ducts, occurs in adults. A

similar relapsing infection occurs in children for no apparent reason, but usually clears spontaneously at puberty.

Occasionally, other bacteria can infect and produce lesions of the salivary glands, particularly the parotid. These include actinomycosis, tuberculosis, cat scratch fever, syphilis and pneumococcal infection.^{3,4} Appropriate antibiotic therapy with rehydration, and drainage if necessary, is the treatment of choice.¹⁻⁴

2c. Sialolithiasis: Salivary gland stones occur most often in Wharton's ducts of submandibular glands^{1,4} (Fig. 1), but can also be found in the parotid glands or minor salivary glands, especially those in or near the upper lip mucosa.⁵ Sialoliths are hard yellow masses, composed of cellular debris, mucin, sometimes bacterial colonies from secondary infection, and calcified material; hydroxyapatite and calcium carbonate. The patient may be asymptomatic or have pain and swelling in the affected gland at mealtimes. The stones are often multiple and vary in size and shape from minute grains to cigar shaped masses several mm long, visible as radiopacities. These are more common in middle-aged patients. Treatment ranges from milking small stones out of ducts to excision of entire glands.^{1,4} Microscopically, the associated glands exhibit a chronic inflammatory infiltrate with varying degree of fibrosis, termed "Chronic Sclerosing Sialadenitis", a non-specific histopathologic change that can also occur due to trauma, ductal strictures or therapeutic radiation. This leads to progressive shut-down of the gland and can cause xerostomia.

2d. Mucocele: This is the most common lesion of minor salivary glands. A duct is traumatically severed, spilling mucin into surrounding connective tissue. A subepithelial, fluctuant blister (Fig. 2) forms which can easily be ruptured, releasing mucin into the mouth, only to reform. The lower lip mucosa of children are typically affected. However, a wide age range and any intraoral site containing salivary glands is susceptible. Microscopically, a subepithelial pool of mucin, surrounded by a cuff of histiocytes and condensed connective tissue, is seen.² Clinically, this lesion resembles a mucous retention cyst³ but the latter is a duct dilated by mucin, usually seen in adults. Either lesion, when large and occurring in the floor of the mouth, is given the clinical term "Ranula" (Fig. 3).^{2,3}

2e. Necrotizing Sialometaplasia: This uncommon disease usually affects the minor glands of the hard palate in adults.

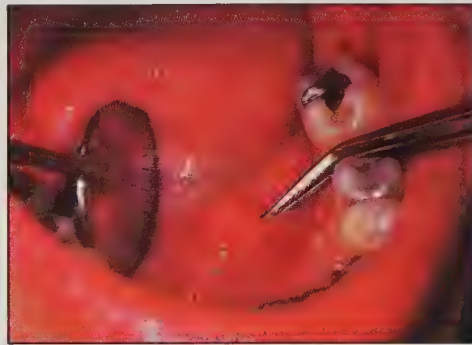


Fig. 1. Sialolith in the left floor of mouth, visible as a yellow submucosal nodule.

An infarct results in necrosis of salivary gland acini, spillage of mucin, inflammation, and squamous metaplasia of some acini and ducts. Clinically, a palatal lump falls off, leaving a deep, mucinous ulcer, resembling a carcinoma. Symptoms are usually minimal. Due to its worrisome clinical appearance, a biopsy is usually taken. This lesion can be bilateral. It heals spontaneously in 6 to 10 weeks. Recurrence is rare.^{2,6}

3. Hypertrophies: Slowly progressive, asymptomatic, bilateral, non-inflammatory salivary gland enlargement (especially at the parotids), in adults, is a common finding. Typically, there is no apparent clinical alteration in the quantity or quality of saliva. In most cases, there is an initial hypertrophy of the parotid acini, but this slowly gives way to an infiltration of fat, causing bilateral facial enlargement in front of, and just inferior to the ears. The following is a partial list of causes of parotid hypertrophy:^{1,4}

- Alcoholism;
- Nutritional deficiencies, including vitamins A (4), B2, B3;
- Chronic heavy metal poisoning, including lead and mercury;
- Long-term drug therapy, including isoproterenol, thiouracil, phenylbutazone and atropine;
- Diabetes mellitus;
- Obesity.

4. Functional Changes: Excessive salivation is called "sialorrhea", while deficient salivation leads to dry mouth or "xerostomia". The causes and effects of these two conditions are varied.

4a. Sialorrhea: The salivary glands produce 500 to 1500 ml of saliva per day in adults. Children can produce more. Excessive saliva production can be caused by varied processes, including the following:

- Oral inflammation: e.g. intraoral herpes, aphthous ulcers, teething, the initial stages of oral radiation therapy;
- Drugs — parasympathomimetics;



Fig. 2. Mucocele of right lower lip submucosa.



Fig. 3. Ranula in the left floor of mouth.

- Acute heavy metal poisoning: e.g. mercury, lead;
- Psychic stimuli: e.g. thinking of eating;
- Nausea;
- Foreign bodies in the mouth: e.g. new dentures;
- Patients with neuromuscular disorders exhibiting difficulty in swallowing.

Patients, except those with neuromuscular disorders, rarely complain of sialorrhea, although it does complicate the performance of dental procedures.⁷

4b. Xerostomia: Dry mouth is a major complaint in 10 to 25% of the adult population. It is associated with the following side effects: increased caries rate, intolerance to prostheses, oral ulceration and a burning sensation of the tongue and other mucous membranes. It is frequently associated with other systemic or local diseases [see 5]. The causes can be transient or chronic.^{1,8}

Transient Causes:

- Drugs: e.g. atropine, antihistamines, tranquilizers;
- Psychic stimuli: e.g. fear;
- Dehydration: e.g. uncontrolled diabetes, hemorrhage, sweating, diarrhea, vomiting;
- Mouth breathing;
- Acute salivary gland infections.

Chronic Causes:

- Drugs: long-term therapy with drugs; e.g. tranquilizers;

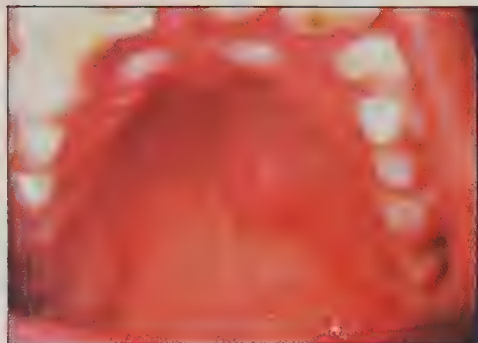


Fig. 4. Pleomorphic adenoma of the left junction of the hard and soft palate.



Fig. 5. Mucoepidermoid carcinoma of the left junction of the hard and soft palate. It is blue because low grade lesions are mucin-filled and cyst-like, mimicking mucocoeles.



Fig. 6. Polymorphous low-grade adenocarcinoma in a typical site.

- Oral radiation therapy;
- Hypovitaminosis A;
- Old age;
- Anemias;
- Autonomic nervous system lesions;
- Autoimmune salivary gland disease;
- Diabetes.

Treatment of chronic xerostomia consists of saliva substitutes such as glycerine, which tends not to be very satisfactory to the patient.

5. Autoimmune Salivary Gland Disease:

The sicca syndrome and Sjogren's syndrome are two closely related autoimmune diseases that affect the salivary glands and other similar glands of the body, especially in middle-aged women. The parotid glands are most commonly

affected but most salivary glands, including the minor salivary glands, exhibit some effects of the immunologically mediated injury. Biopsies of minor salivary glands of the lower lip are useful in the diagnosis of these diseases. The parotid glands contain focal zones of lymphoid cells and residual salivary gland elements which can produce a discrete mass (benign lymphoepithelial lesion [BLEL]) mimicking a salivary gland neoplasm. Patients with BLEL, have more than a 40-fold greater risk of developing lymphoma than the general population.^{2,4}

5a. Sicca Syndrome (Mikulicz disease, Mikulicz syndrome, primary Sjogren's syndrome): This disease is characterized by dry mouth and dry eyes. It is insidious in onset, although it sometimes starts after a viral illness. Patients can have low grade fever, and unilateral or bilateral swelling of the parotids. Involvement of the lacrimal glands causes dryness of the eyes. Treatment of the xerostomia is unsatisfactory, consisting of various saliva substitutes. The disease is relentless, waxing and waning for decades. There is no cure. Discrete BLELs are surgically excised to rule out salivary gland neoplasm or lymphoma.

5b. Sjogren's Syndrome (Secondary Sjogren's syndrome): This disease is characterized by dry mouth, dry eyes, and the presence of another autoimmune disease, usually rheumatoid arthritis. Patients generally have the same oral symptoms and oral treatment as those who have the sicca syndrome but are on additional therapy for the other autoimmune disease. A great deal of research into this disease has demonstrated that many affected patients have circulating autoantibodies to nuclear antigens, and sometimes to a salivary gland duct antigen. There is no cure for the disease, which lasts for the patient's lifetime. The risk of lymphoma is also 40 times greater than for the general population.^{2,4}

Neoplastic Diseases

Salivary gland neoplasms of epithelial origin are not rare. These occur at the rate of 1 or 2 per 100,000 people, per year.^{9,10} The parotids are affected about 10 times more often than the submandibular glands and minor glands, while neoplasms of the sublingual glands are rare. Most intraoral salivary gland neoplasms occur at the junction of the hard and soft palate, and in the upper lip. The buccal mucosa is an uncommon site, the tongue, floor of the mouth and lower lip, rare. Most parotid neoplasms are

benign, while proportionally more of the submandibular neoplasms, and even more of the intraoral neoplasms, are malignant.

1a. Benign Salivary Gland Neoplasms:

These lesions typically present as discrete, mobile nodules that grow slowly, and have been present for months or even years. There is no pain, although some palatal lesions are ulcerated from masticatory trauma. A bewildering number and variety of benign salivary gland neoplasms exist, most of which are rare and unlikely to be encountered by the dentist. Interested readers are referred to appropriate textbooks.^{4,10-12} The following three make up the large majority of these lesions:

- **Pleomorphic Adenoma** (Mixed Tumour) (**Fig. 4**): This is by far the most common of all salivary gland neoplasms. It has a peak incidence in the 30 to 50 age group, though it can occur in children and the elderly. Because of the fact that islands of the neoplasm often herniate through the fibrous capsule, the lesion should be excised with a margin of normal tissue to avoid recurrence. Palatal pleomorphic adenomas do not invade bone. The prognosis is excellent.^{4,10,12}
 - **Warthin's Tumour** (Papillary cystadenoma lymphomatosum): This neoplasm usually occurs in the parotid gland of elderly males. Sometimes multifocal, it can be present in both parotids, usually asynchronously. It presents as a slowly growing, asymptomatic, freely moveable mass. Microscopically it is composed of bilayered strands of oncocytes forming cysts and papillary structures, with masses of lymphocytes filling the stroma. Surgical excision is curative.^{4,10,12}
 - **Canalicular Adenoma**: This neoplasm presents as one or sometimes multiple discrete, asymptomatic, mobile nodules in the upper lip mucosa of middle-aged to elderly men and women. It consists of bilayered ribbons of columnar or basaloid cells in a loose vascular stroma, within a fibrous capsule. Surgical excision is curative.¹³
- Though the term monomorphic adenoma is often used collectively to denote all benign salivary gland neoplasms other than pleomorphic adenomas, it has no diagnostic or prognostic value.¹⁴ Specific entities included under this term are: basal cell adenoma, trabecular adenoma, tubular adenoma, myoepithelioma, mucous cystadenoma, and sometimes sialadenoma papilliferum,

intraductal adenoma, inverted ductal adenoma, sebaceous adenoma, sebaceous lymphadenoma and oncocytoma.

1b. Malignant Salivary Gland

Neoplasms: These lesions present as slowly or rapidly growing, discrete or diffuse masses, often bound to adjacent tissues, and are sometimes painful. They can invade bone, as well as peripheral nerves, causing paresthesia, paralysis, or pain. There are many types.^{4, 10-12}

• Mucoepidermoid Carcinoma (Fig. 5):

This neoplasm occurs over a wide age range, including children, but is most often found in patients 20 to 40 years of age. Microscopically, it consists of mucous cells, squamous cells and incompletely differentiated cells in varying proportions, often forming cystic spaces filled with mucin. Most are low grade carcinomas for which the prognosis is excellent following surgical excision, but a few are high grade lesions with a poor prognosis. Intermediate grade lesions have an intermediate prognosis.^{4, 12}

• **Acinic Cell Carcinoma:** This neoplasm usually occurs in the parotid gland, though intraoral lesions are occasionally encountered. It is a neoplasm of serous acinic cells which form sheets of microcystic structures. It tends to occur in middle-aged adults. The prognosis is good following complete surgical excision. Metastases are a late complication.⁴

• **Adenoid Cystic Carcinoma:** This neoplasm occurs in all the salivary glands but makes up a large proportion of salivary gland neoplasms of the palate. It occurs in middle-aged to older adults. There are several microscopic patterns, but the most characteristic is a pseudocystic lesion composed of basaloid cells. It is non-encapsulated and exhibits a marked tendency to invade peripheral nerves, resulting in clinical symptoms. Bony invasion occurs, and metastases can occur late in the disease. Treatment includes wide surgical excision, sometimes with radiation therapy. The long-term prognosis is poor.^{4, 12}

• **Polymorphous Low-Grade Adenocarcinoma:** This recently described entity,¹⁵ previously considered a variant of adenoid cystic carcinoma, is one of the most common intraoral salivary gland malignancies. Unlike the adenoid cystic carcinoma, it is a low grade carcinoma with a good prognosis. It typically occurs in middle-aged to elderly patients, producing a submucosal mass

at the junction of the hard and soft palate (Fig. 6) that can displace a denture. Microscopically it has of a variety of appearances, often mimicking lobular carcinoma of the breast. Like adenoid cystic carcinoma, perineural invasion is common.¹⁵

• Carcinoma Ex Pleomorphic Adenoma:

Long-standing pleomorphic adenomas can undergo malignant transformation, heralded by a sudden rapid increase in size, and fixation to the surrounding tissues. Usually the ductal portion of the neoplasm becomes malignant, producing an adenocarcinoma which can metastasize, and eventually cause death. The prognosis is poor.⁴

• **Others:** Rarer carcinomas of salivary glands include epidermoid carcinoma, epithelial-myoepithelial carcinoma, salivary duct carcinoma, undifferentiated carcinoma, sebaceous carcinoma, basal cell adenocarcinoma, mucous-producing adenocarcinoma, small cell carcinoma, clear cell carcinoma, low grade papillary carcinoma, myoepithelial carcinoma and sialocarcinoma, not otherwise specified. Δ

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September 26-28: 3rd Asian Academy of Cranio-mandibular Disorders in Singapore. Contact: Asian Academy of Cranio-mandibular Disorders, c/o 268 Orchard Rd, 5th floor, Singapore 0923. Fax: (65) 7321979.

September 27-30, 1991: 13th Congress of the International Association of Dentistry for Children, Kyoto, Japan. For information contact the Secretariat, 13th Congress of the International Association of Dentistry for Children, c/o Japan Convention Services, Inc., Sumitomo Seimei Midotsuji Bldg., 4-14-3, Nishitemma, Kita-ku, Osaka 530, Japan.

September 29-30: American Board of Oral and Maxillofacial Radiology 1991 Certifying Exam in Seattle. Application deadline: March 1, 1991. Contact: Dr. A. Ruprecht, University of Iowa, College of Dentistry, DSB-356, Iowa City, IA 52242-0101. Tel (319) 335-7341.

October/Octobre 1991

October 2-5: American Academy of Periodontology. Contact: Barbara Mueller Connell, 211 E Chicago Ave, Suite 1400, Chicago, IL 60611, USA. (312) 787-5518.

October 7-13: Fédération Dentaire Internationale in Milan, Italy. For information, contact: Janice Edgar, c/o Canadian Dental Association, 1815 Alta Vista Dr, Ottawa, Ont. K1G 3Y6 (613) 523-1770.

October 9-13: American Society of Dentistry for Children. Contact: Carol Teuscher, 211 E Chicago Ave, Suite 1430, Chicago, IL 60611, USA. (312) 943-1244.

October 26-28: 17th General Meeting of the Japanese Association for Dental Science in Osaka. Contact: Japan Dental Association, 4-1-20 Kudan-kita, Chiyoda-ku, Tokyo 102, Japan.

November/Novembre 1991

November 27-30: XIIth International Dental Film and Video Festival in Paris. Enrolment deadline February 15, 1991. Enquiries: Dr. M. Dolovici, XIIèmes Journées 1991, 92 av. de Wagram, Paris, France. 33 1 42.27.89.00.

June/Juin 1991

June 5-8: Medical/Hospitech 91 in Bangkok, Thailand. For more information, contact: SHK International Services Ltd., 23/F, 151 Gloucester Rd., Wanchai, Hong Kong.

June 5-10: 3rd International Symposium cum Training Course on Osseointegrated Dental Implants in Singapore organized by the University of Pennsylvania. Contact: Orchard Dental Centre Pte Ltd., 268 Orchard Rd #05-07, Singapore 0923. Tel: (65) 7343162.

June 5-12: American Dental Hygienists Association. Contact: Ms. Kathy Gallagher, 444 N Michigan Ave, Suite 3400, Chicago, IL 60611, USA.

June 10-14: 2nd Iberian-Latin American Congress on Preventive Odontology & 2nd National Congress on Pediatric Odontology in Havana, Cuba. For more information, contact: Federacion Odontologica Latinoamericana, Calle 4, No. 407 entre y 19, Vedado, La Habana, Cuba.

June 14-17: The Third World Congress on Preventive Dentistry in Fukuoka, Japan. For information, contact: Secretariat of WCPD '81, c/o Dept. of Preventive Dentistry, Faculty of Dentistry, Kyushu University 61, Higashi-ku, Fukuoka, 812 JAPAN.

July/Juillet 1991

July 1-3: Bermuda Dental Association Convention. For pre-registration and group travel arrangements, please contact: Dr. Robert Brandon, 85 Lonsdale Dr, London, Ont. N6G 1T4. Tel: (519) 657-3368.

July 4-6: Annual Conference of the British Dental Association in Manchester. Contact: British Dental Association, Conference Office, 64 Wimpole St, London

W1M 8AL, England. Tel: (071) 935-0875. Fax: (071) 487-5232.

July 12-17: Academy of General Dentistry. Contact: Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200, Chicago, IL 60611, USA.

July 14-16: 12th International Conference on Oral Biology in Athens, Greece. Contact: International Association for Dental Research, 1111-14th St NW, Suite 1000, Washington, DC 20005, USA. Fax (202) 789-1033.

August/Août 1991

August 2-4: 7th Annual ACOI Symposium in Dearborn, Michigan. Contact: Margaret Jackson, The International Congress of Oral Implantologists, 248 Lorraine Ave, Upper Montclair, NJ 07043, USA. Tel: (201) 783-6300.

August 8-11: American Academy of Esthetic Dentistry in Santa Barbara, CA. Contact: Ms. Cheryl Kraus, 211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA. (312) 664-2122.

September/Septembre 1991

September 12-15: International Association for Orthodontics. Contact: Joanna Carey, 211 E Chicago Ave, Suite 915, Chicago, IL 60611, USA. (312) 642-2602.

September 25-29: American Association of Oral & Maxillofacial Surgeons in Chicago. Contact: Lisa Sykes, 9700 W Bryn Mawr Ave, Rosemont, IL 60018, USA. (708) 678-6200.

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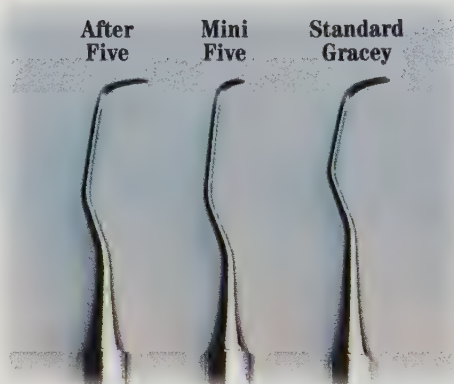
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ALBERTA—Edmonton: PRACTICE FOR SALE. Established general practice. Five operatories, central location, low overhead. Telephone (403) 422-2783 (days), (403) 467-6887 (evenings). (3-20/5)

ALBERTA—Edmonton: PRACTICE FOR SALE Beautiful, spacious, professionally decorated dental office. This family practice with good new patient growth is in a rapidly growing area of Edmonton. There are 4 operatories, hygienist room, private office, lab and staff room. Two operatories equipped with state-of-the-art equipment. For full details call Cindy (403) 465-9041. (3-15/13)

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ALBERTA—Northeast: Busy, well-established family practice for sale in Grand Centre/Cold Lake. Thriving military and oil industry clientele. Two operatories in a cost-shared, computerized dental building. Please call in confidence (403) 639-4132 evenings. (4-2/6)

ALBERTA—Red Deer: PRACTICE FOR SALE. Established practice in downtown professional building. Equipment and charts may be bought separately. Extremely reasonable price. Evenings (403) 347-8740. (4-22/5)

SASKATCHEWAN: Large rural practice for sale in progressive community. Modern 3 op layout with panorex, fully-staffed including therapist and hygienist. High yearly gross. Reduced price as owner is returning to grad school. Please reply to CDA Box 2483. (3-21/13)

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MANITOBA—Winnipeg: Long-established, dental practice for sale. Self-contained building with 6 well-equipped operatories, pan x-ray and full lab in basement. Owner would like to retire, but will work for as long as new owner wishes. At present one associate of long standing. Phone (204) 837-5738. (4-6/5)

ONTARIO—Barrie Area: Well-established family practice for sale in professional building. Three well-equipped ops, computerized. 25 new patients per month and a strong recall base. Excellent year-round recreational area. Please call (705) 734-9673 or (705) 466-3344. (4-3/6)

ONTARIO—Kingston—Belleville Suburb: Population 4000+. Practice for sale located in a modern medical clinic, high gross. Buyer take over lease as purchase price. Present dentist/staff are willing to stay on to ensure smooth transition. Serious calls please. Call (613) 748-0633 between 12:00-20:00 and ask for Madeleine. (5-15/6)

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ONTARIO—Ottawa: Dental office for sale. Large Office, very high volume. Very high gross. Suitable for 2 or 3 practitioners. Owner would associate to introduce patient. Contact CDA Box 2505.

(2-6/5)

ONTARIO—Windsor: Well-established, 5-year-old general practice for sale. Low overhead, 5 + 5 years lease, 1000 sq ft, 3 fully-equipped Siemens operatories, natural light. High gross. Located on a busy shopping plaza. 90% of the patients have excellent dental benefits. 15 minutes to US border. Close to economical shopping, theatres and sports arenas. 30 minute drive to Detroit metro airport. Owner willing to stay 2 days per week as an associate. Please reply to CDA Box 2514.

(5-16/12)

NEW BRUNSWICK—Bathurst: Busy, established family practice for sale. Newly renovated office. 30 new patients per month with strong recall base. Owner leaving area and willing to negotiate price. Reply in confidence to CDA Box 2500.

(07-14/13)

NOVA SCOTIA—Halifax: Great Opportunity! Three-year-old practice in rapidly growing Halifax location. Beautiful new facility. Lots of parking. Two fully-equipped ops plus one shared. Good recall base and steady new patient influx. Must sell due to other commitments. Very reasonable. (902) 443-4111. (4-16/7)

Associateships Available

NWT—Yellowknife: Associateship available in Yellowknife Iqaluit. Excellent remuneration with vast recreational potential. Minimum 2 year contract requested. Please reply to CDA Box 2517.

(5-19/7)

ALBERTA—Red Deer: ASSOCIATE REQUIRED. A quality-oriented dentist is sought by this busy, well-established practice. Excellent opportunity to deliver a full range of dental services exists in this fully-equipped, well-staffed office. Buy-in opportunity for the right person. Present associate leaving for graduate school. Reply to Dr. Vinay Chafekar, 306-4822 Ross St, Red Deer, AB T4N 1X4 or phone (403) 347-5224 days or 346-4675 evenings. (5-13/7)

ONTARIO—North Toronto: Position available immediately or a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426.

(08-06/13)

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(5-2/7)

ONTARIO—Windsor: Full-time associate needed who is willing to work evening hours. Able to perform molar root canal and oral surgery procedures in a modern general practice. Future buy-in or purchase of this office is possible. Call (519) 974-6120 or 979-1371 and ask for Gabe.

(5-16/13)

QUEBEC—Beaconsfield: Ambitious, bilingual, full-time associate wanted for growing family practice. Clinical excellence essential. Individual must also share our belief in a team approach and continuing education. We have a modern facility with an outstanding staff. Experience preferred. Please call Claudia at (514) 694-1761.

(4-17/5)

NOVA SCOTIA—Truro: Want to move home to Nova Scotia? Here's your opportunity! Female dentist with full-time hygienist seeking a full-time, ambitious associate with experience for a busy, family-oriented practice. Emphasis on preventive and advanced restorative dentistry. Please write CDA Box 2513.

(5-9/7)

NEWFOUNDLAND: Associate Dentist. Wanted in established clinic in Newfoundland outport community. Currently only one full-time dentist serving 10,000. Outdoor lifestyle (fishing, hunting, cross country skiing and close by excellent downhill skiing.) Great opportunity for new graduate. Contact Dr. Rob Piedalue, Baie Verte Health Ctre, Baie Verte, NF AOK 1B0 (709) 532-8014.

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Auxiliaries

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ALBERTA—Edmonton: A full-time hygienist needed for established, busy general practice. Excellent working environment. Please send resume to: Box 36039, Castledowns Postal Outlet, Edmonton, ALTA T5X 5V9.

(4-12/5)

NEWFOUNDLAND: Restorative Hygienist Wanted: Established clinic in Newfoundland outport community serving peninsula of 10,000. Outdoor lifestyle (fishing, hunting, cross country skiing and only 2½ hours from excellent downhill skiing). Excellent salary, benefits package. Contact Dr. Rob Piedalue, Baie Verte Health Centre, Baie Verte, NF AOK 1B0 (709) 532-8014.

(5-4/7)

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BRITISH COLUMBIA: Graduating dental student seeks full-time associateship in the Vancouver area. Available in early June 1991. Phone (519) 439-0919.

(5-1/5)

MANITOBA: Experienced dentist seeking locum, associateship or purchase in Winnipeg or surrounding rural area. Please reply in confidence to CDA Box 2516.

(5-17/6)

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BRITISH COLUMBIA: Partnership available in the beautiful Queen Charlotte Islands. Progressive practice with 5 units and 2 hygienists. Immediate full patient load and high income. This is an opportunity for a low stress lifestyle with year-round, world-class fishing, excellent boating, scuba diving and kayaking. And Vancouver is only an 1½ hour jet ride

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BRITISH COLUMBIA—Chilliwack: Associateship/Partnership. Associateship with view to partnership available to dentist committed to continuing education and excellence in patient care. Busy practice located one hour east of Vancouver in beautiful Fraser Valley. Area offers skiing, hiking, boating and mild climate. Present associate leaving area and new person would be taking over his busy practice. For further information, contact Dr. Michael Thomas, 102-45625 Hodgins Ave, Chilliwack, BC V2P 1P2 or call (604) 792-0021 (office) or (604) 795-9818 (residence). (5-5/6)

BRITISH COLUMBIA—Richmond: LOCUM REQUIRED while dentist on leave from July 1 to December 1, 1991. It is a busy, well-established general practice (75% adults). The staff is well-trained and capable of managing the practice. Phone (604) 270-7504 or (604) 271-4312 evenings and weekends or write to PO Box 94-513, Richmond, BC V6Y 2V6. (5-11/6)

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MANITOBA—Flin Flon: Vacancy mid-June in friendly general family practice. Full clinical freedom, generous percentage and high income assured. Active recreational area with beautiful lakes. Some travelling required. For further details, please phone collect. Dr. Malcolm T. Crozier, (204) 687-4214 office or (204) 687-5580 home. (4-23/5)

ONTARIO: Periodontist wanted for progressive multi-office Toronto periodontal practice. Associateship leading to partnership. Please reply to CDA Box 2492. (4-1/5)

ONTARIO—Burlington: PARTNERSHIP. An outstanding opportunity exists in a well-established, busy and progressive practice. We are looking for a highly motivated individual with good patient management skills. We are offering a very pleasant working environment and complete financing can be arranged through earning potential. Please call Miss P. Thompson at (416) 632-9881. (2-3/5)

ONTARIO—Mississauga: Store front dental office leasable and/or equipment for sale. Leasable: Professional designed 4-year-old office (1700 sq ft) in skylit, busy plaza location with Santa Fé decor. Equipment: 5 op totally equipped with 4 Pelton & Crane chairman chairs + x-rays (Op 10 Pan with ceph Ritter and Siemens cabinets). All values appraised by Roi Corporation. Package available entirely or piece by piece. Patient base has been relocated. For more information, contact: Helen at (416) 823-7600. (5-10/5)

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ONTARIO—Richmond Hill: Exceptional opportunity WE MUST HAVE A DENTAL PRACTICE. New, attractive 1685 sq ft space available (or any part thereof) in Bayview Plaza Medical Centre, 10610 Bayview Ave. Excellent location for a family practice in a community with great growth potential. We will provide a very attractive finishing allowance to suit your layout. Ample parking. Call Ben Walker Ltd (416) 925-0061. (4-21/7)

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Doing the Right Thing

Journal Editor Dr. Ralph Crawford raised the question, "Can Ethics be Taught?" in his November 1990 editorial. While I agree with him that we cannot teach the concepts of "right and wrong", there is good reason to teach ethics to dental and dental hygiene students, and to practising dentists as well.

While we expect dental health care professionals to know the difference between what's right and wrong, the ethical dilemmas they often face in dentistry are extremely complex. They must develop decision-making skills that will help them "do the right thing". That's the purpose of an ethics course: to make dental health professionals aware of the ethical issues in today's practice environment, and to teach them decision-making skills to confront these issues.

In 1989, the Conference on Ethics in Canadian Dentistry and Dental Education, sponsored by the CDA and CFDE, identified a need within Canadian dentistry for dialogue and education in ethics. In response, the CDA's Committee on Ethics has drafted a new Code of Ethics to educate both patient and practitioner about our profession's ethical values and standards. The Association of Canadian Faculties of Dentistry has committed its member faculties to promote clinical dental education for students which is based on the provision of comprehensive oral health care, rather than individual treatment procedure requirements. To foster ethical behavior in dental students, the Association is also working to integrate ethics into all dental education courses.

Neither the CDA, nor the ACFD believe these efforts will rehabilitate a dental health care professional who does not comprehend the difference between "right and wrong". However, these initiatives should help the vast majority of us who sometimes have difficulty deciding what is "the right thing to do" when faced with an ethical dilemma.

Bruce S. Graham, DDS, MS, MEd, MRCD(c)
Vice President
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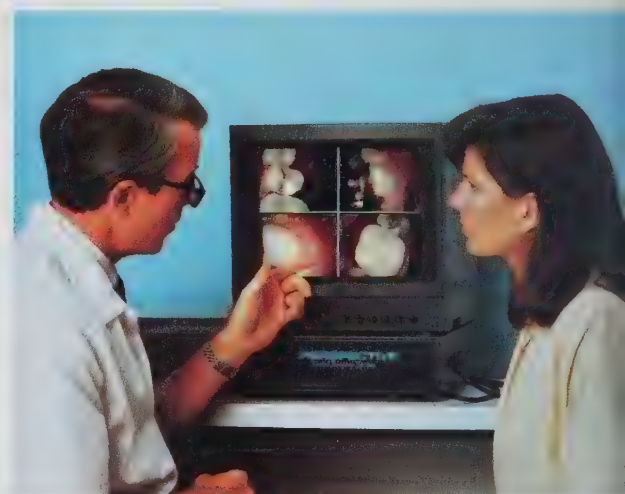
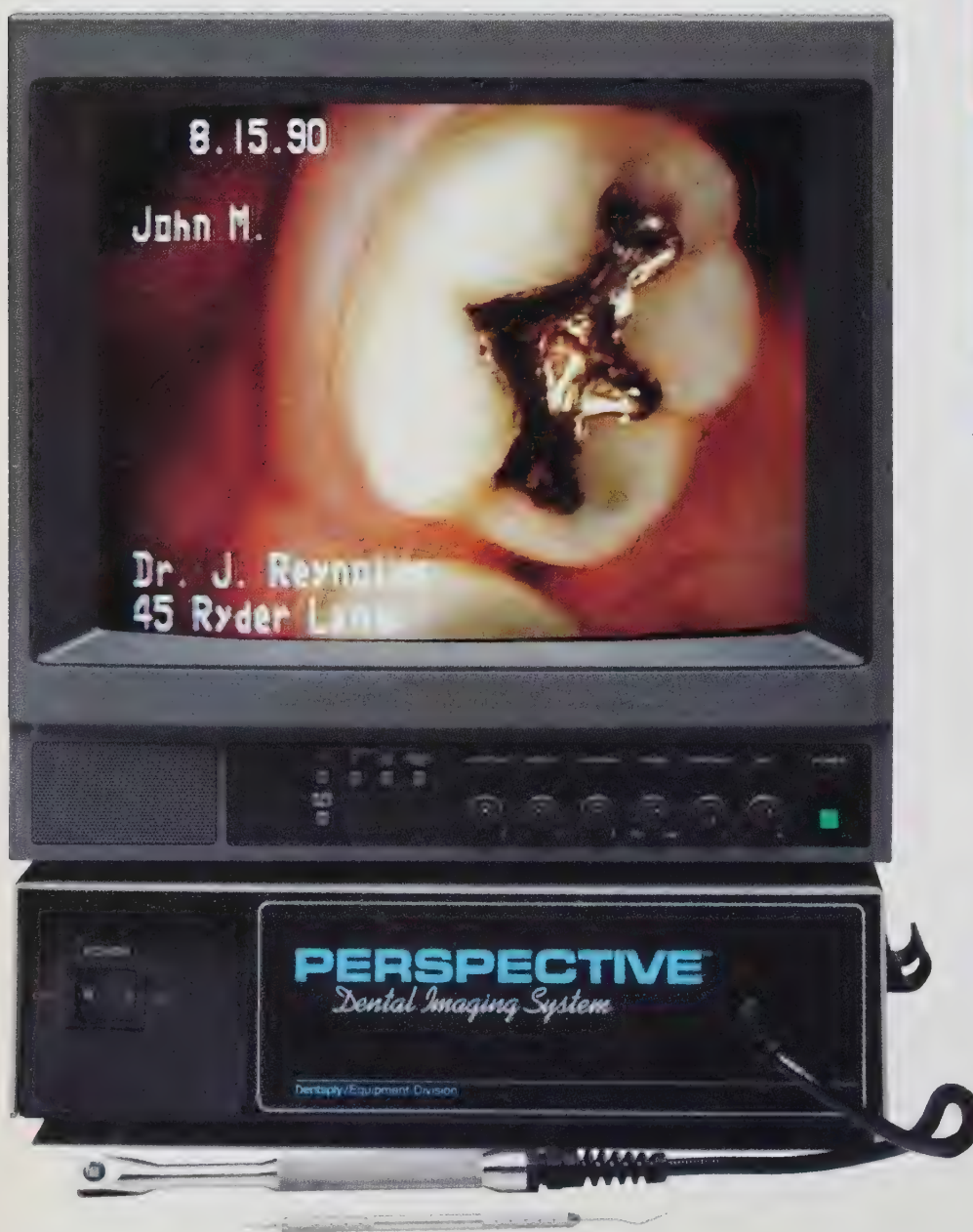
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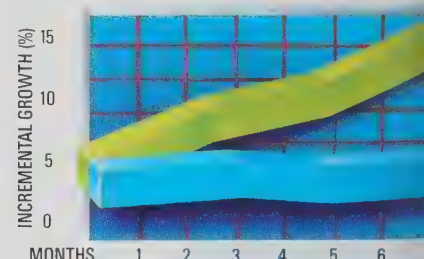
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Juin 1991

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Couverture :
La ville de Québec, où l'ADC tiendra son congrès annuel cet automne.

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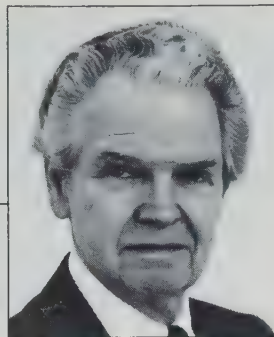


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REFERENCES: 1. Lanster J.B. et al. CLIN. PREV. DENT. 3: 12-16, 1983. 2. Gordon J.M. et al. J. CLIN. PERIODONTOL. 12: 697-704, 1985. 3. De Paola L.G. et al. J. DENT. RES. 66: 311-315, 1989. 4. Overholser D. et al. J. CLIN. PERIODONTOL. 17: 575-579, 1990. 5. Council on Dental Therapeutics Accepts Listerine. J. AMER. DENT. ASSOC. 117: 515-516, 1988.





Un miracle en quarante jours?

Voyager par avion est merveilleux : en quelques heures, vacanciers et gens d'affaires sont emportés au bout du monde. Aussi nous est-il difficile d'imaginer que nos ancêtres devaient mettre six semaines pour traverser les mers à la voile.

Il nous arrive cependant d'être retenus plusieurs heures dans un aéroport à cause du brouillard, de problèmes mécaniques ou d'un délai entre deux vols. Aussi convient-il alors de prendre son mal en patience.

C'est ce qu'a dû faire récemment un dentiste retenu à l'aéroport de Toronto. Voulant tromper son ennui en allant fureter dans les kiosques à journaux, il a découvert une collection de cassettes promettant des transformations miracles : **Comment perdre dix livres en dix jours, Comment se rendre sûr de soi en dix jours, Comment cesser de fumer en dix jours, Comment se soulager du stress en dix jours**. Ainsi, en achetant cette collection, il pouvait espérer que, d'un obèse anxieux et stressé fumant comme une cheminée, il serait transformé en quarante jours en une personne svelte, sûre de soi, parfaitement calme et ne sentant pas la nicotine.

Pour les tenants de la foi judéo-chrétienne, les miracles opérés en quarante jours ne sont pas rares. Moïse n'a-t-il pas passé quarante jours et quarante nuits sur le Sinai avant de recevoir les **Dix Commandements**? Et le prophète Elie ne s'est-il pas nourri et abreuvé pendant quarante jours et quarante nuits pour refaire ses forces avant de retourner sur le mont Horeb, la montagne de Yahvé? Le Christ Lui-même a passé quarante jours et quarante nuits dans le désert pour pouvoir repousser les tentations du démon.

Sans doute les dentistes qui voyagent seuls et cherchent à tuer le temps dans un aéroport ne se transforment-ils pas tous miraculeusement en quarante jours comme l'ont été ces personnages bibliques. L'exercice de la dentisterie n'a jamais été facile, et acheter des cassettes pour se perfectionner n'est probablement pas la solution. Cependant, quand on réfléchit sur la transfiguration opérée en Moïse, Elie et Jésus-Christ ou encore sur les réalisations des athlètes, des érudits et des scientifiques, on découvre que tous ont eu un objectif auquel ils se sont consacrés.

Pour être sûr de soi quand on exerce la dentisterie, il faut s'assurer de prescrire le bon traitement et non jouer aux devinettes. La confiance en soi s'acquiert avec le savoir et le savoir s'acquiert seulement après des années de discipline dans une école de médecine dentaire et une vie d'apprentissage continu.

Quant au stress lié à l'exercice de la dentisterie, ce n'est pas une formule miracle cachée dans quelque cassette qui le soulagera. Le soulagement vient pour ceux qui s'appliquent à l'obtenir. Veuillez noter que nous disons soulagement et non guérison. Selon le Dr Peter G. Hanson, un médecin de Markham (Ontario) qui s'est fait connaître grâce à un succès de librairie, **The Joy of Stress** (Le bonheur du stress), le stress est inévitable, mais on peut atteindre le bonheur en apprenant à le gérer. « *Apprenez à ignorer ce que vous ne pouvez pas contrôler, écrit-il, et apprenez à contrôler ce que vous pouvez contrôler. Prenez une part active à la gestion de vous-même; ne traversez pas la vie simplement en touriste passif.* »

On ne parvient pas sans efforts à mieux exercer la dentisterie, à réduire son poids ou à cesser de fumer. Aussi ne peut-on raisonnablement espérer qu'un miracle s'opère en quarante jours. Pour réussir, il faut se fixer un objectif. Ceux qui réalisent de grands desseins, ceux qui parviennent à la satisfaction d'eux-mêmes sont ceux qui luttent pour atteindre des objectifs qui en valent la peine — ceux qui ont pour ambition de faire de ce monde un monde meilleur et non seulement un monde qu'ils peuvent exploiter égoïstement. C'est Robert Browning qui, dans son **Rabbi Ben Ezra**, disait à peu près ceci : *Bien triste est l'éloge de la vie quand, formé pour le bonheur, l'homme le cherche et le trouve uniquement dans les fêtes.*

P. Ralph Crawford, BA, DMD

Le rédacteur du Journal de l'Association dentaire canadienne



La Conférence de l'ADC sur le virus HIV un choix qui nous convient

Dans ce numéro, vous trouverez les délibérations de la dernière conférence de l'ADC sur les conséquences que le virus HIV et d'autres agents infectieux ont sur les services bucco-dentaires. Les sept recommandations qui en ont émané ont été annoncées comme il se doit à la profession dans une lettre du président adressée à tous les membres de l'ADC à la fin d'avril, dans des communiqués de presse rédigés immédiatement après la conférence ainsi que dans des lettres adressées aux associations et aux ordres professionnels provinciaux.

On a oublié de le dire, mais la préparation et la tenue de cette conférence d'une importance vitale pour toute la profession ont exigé beaucoup de temps, d'efforts et d'énergie. Une fois de plus, l'ADC, fidèle à son engagement et à son esprit de leadership, a donné la preuve qu'on y oeuvre en vue du bien-être des Canadiens, tant les dentistes que leurs patients.

En effet, cette conférence démontre que l'ADC assume pleinement la responsabilité qu'elle a prise d'étudier toute question ayant des conséquences sur la façon dont nous exerçons la dentisterie aujourd'hui et dont nous l'exercerons demain.

En 1988, l'ADC a formulé des procédures pour réduire les risques d'infection, cherchant à éclairer la profession sur la manière d'exercer la dentisterie tout en assurant la sécurité du praticien et du patient et tout en protégeant leur santé. Ces directives, l'ADC les a formulées en sachant que les principes touchant la transmission des maladies évoluent sans cesse. Ce qui est vrai aujourd'hui ne le sera pas nécessairement demain. Aussi, en publiant ces directives, l'ADC s'est-elle engagée à les réviser régulièrement afin de s'assurer qu'elles répondent toujours aux besoins des personnes qu'elles visent à protéger.

On a pu mesurer l'importance de cet engagement l'été dernier quand on a prétendu qu'un dentiste de la Floride avait transmis le virus HIV à une patiente. Cet incident dramatique a été à l'origine de la conférence tenue par l'ADC.

Tout en prévoyant qu'il y aurait probablement des pressions pour que les séropositifs déclarent leur état, nous savions que la peur que suscite le virus était aiguë. Par ailleurs, l'ADC a été fortement influencée par la position prise par l'Association dentaire américaine en janvier 1991 dans laquelle on recommande aux dentistes séropositifs de déclarer leur état à leurs patients ou de s'abstenir d'exécuter des procédures invasives.

(suite à la page suivante)

Le mot du Président

Heureusement, l'ADC avait le temps en sa faveur. Lors de la séance de planification d'automne, nous avons prévu de tenir la conférence, et tant le public que les médias ont permis à l'organisation de la dentisterie de se pencher sur ce sujet en temps opportun. En outre, il n'y a pas eu, au Canada, de cas vérifiés où il y aurait eu transmission du virus entre un dentiste et un patient.

Compte tenu de ces facteurs, l'ADC a rassemblé les meilleurs esprits du pays pour étudier la question sous divers angles : scientifique, épidémiologique, juridique, déontologique, médical, éducatif et gouvernemental. Au lieu d'exprimer des opinions divergentes sur le sujet, tous les experts ont été fortement et presque unanimement d'avis :

- que les risques d'infection sont infinitésimaux;
- qu'il est essentiel pour tous les praticiens de se conformer aux directives de l'ADC pour réduire ces risques et que tout cabinet doit établir un protocole pour suivre ces directives;
- qu'il n'est pas nécessaire pour un praticien contaminé de le déclarer, étant donné que les risques d'infection sont minimes quand les procédures appropriées pour les réduire sont suivies (en outre, rendre ce genre de déclaration obligatoire peut être contraire à la Charte des droits et libertés);
- qu'il est crucial pour le praticien contaminé de faire une déclaration sous le sceau de la confidentialité à son ordre professionnel afin que l'ordre puisse l'aider à prendre des décisions pratiques touchant la santé et la sécurité de toutes les personnes concernées;
- et qu'il est nécessaire de faire davantage l'éducation du public et des professionnels à ce sujet.

Surtout depuis que nous avons choisi une voie différente de celle que nos collègues du Sud ont prise, l'ADC a eu comme défi de persuader tant ses membres que le public que la dentisterie s'occupe de ce problème en faisant preuve de responsabilité. Mais n'est-ce pas là justement démontrer notre leadership? Certes, et en tant que Canadiens, nous continuerons d'affirmer notre détermination à prendre des décisions éclairées qui, parce qu'elles se fondent sur les connaissances acquises et tiennent compte de la réalité qui est la nôtre, ne peuvent que nous convenir.

Le SIDA est l'un des problèmes médicaux et sociaux les plus graves de notre époque. C'est une maladie qui nous met tous à l'épreuve et qui nous touchera tous d'une façon ou d'une autre au cours des prochaines années. Selon le Centre fédéral du SIDA, il y aurait au Canada 4 700 sidéens et de 30 000 à 50 000 séropositifs. De plus, on prévoit que d'ici l'an 2000 ces nombres pourraient être multipliés par neuf.

Dans le milieu dentaire, la gestion des personnes contaminées n'est pas le problème d'autrui; c'est le vôtre et le mien.

Les résultats de la conférence de l'ADC sur ce sujet constituent un effort de plus pour résoudre ce difficile problème de façon sûre et efficace ainsi que pour assurer des procédés justes, humains et compatissants pour les professionnels de la santé qui seraient contaminés.

Comme première profession de la santé à se pencher publiquement sur ce problème au Canada, la dentisterie a raison d'être fière. Nous avons eu le courage et la prévoyance de l'étudier en faisant preuve de responsabilité envers nos pairs, nos patients et tous ceux qui souffrent et souffriront de cette terrible maladie.

*Gilles Dubé, DMD, MSc., Adm. Santé,
Le président de l'Association dentaire canadienne*

Une nouvelle définition de la négligence?

D'après un arrêt de la Cour suprême du Canada prononcé par M^{me} la juge L'Heureux-Dubé et adopté à l'unanimité par les quatre autres juges du quorum, tous les professionnels feraient bien d'examiner d'un oeil critique la manière dont ils exercent leurs professions. En effet, ce n'est pas parce qu'un usage est répandu et généralement accepté que le professionnel sera nécessairement protégé.

Autrement dit, le fait qu'un professionnel exerce sa profession comme ses pairs peut prouver irréfutablement que sa conduite est raisonnable et qu'il s'applique à bien faire, **mais cette preuve ne sera nullement déterminante.**

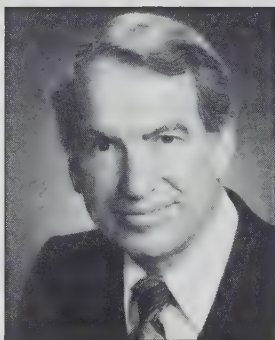
Dans le passé, un dentiste s'affranchissait de toute responsabilité juridique en se conformant aux normes imposées au praticien dentaire **moyen** et raisonnablement prudent possédant les connaissances et les compétences qu'on attend ordinairement chez une personne autorisée à exécuter certaines tâches. En 1956, la Cour suprême du Canada a suivi ce principe en jugeant des médecins, principe qui s'appliquait également aux dentistes :

Tout médecin doit, dans son travail, démontrer qu'il possède à un degré raisonnable les aptitudes et les connaissances nécessaires pour l'exécuter avec soin. **Il est tenu de le démontrer comme on peut raisonnablement l'attendre de tout médecin prudent possédant la même expérience et les mêmes titres.** . .

Devant les tribunaux compétents en toutes matières contentieuses, on recourait à ce principe pour toute négligence et, devant les tribunaux disciplinaires, on l'évoquait dans les cas de mauvaise conduite professionnelle. Chaque fois, avant de pouvoir reconnaître la culpabilité d'un dentiste, il fallait prouver au juge ou au conseil disciplinaire que, selon toute probabilité, le dentiste avait failli à la tâche et, par conséquent, ne s'était pas conformé aux normes acceptables pour l'exercice de sa profession. Bien entendu, pareille preuve devait venir de collègues dont les titres et les compétences étaient jugés en fonction de leurs aptitudes à pouvoir dire si, oui ou non, le dentiste avait, dans le cas en instance, donné les soins nécessaires.

Dorénavant, semble-t-il, les choses seront un peu plus compliquées.

Dans un arrêt encore inédit touchant l'affaire **Roberge c. Boldur**, la Cour suprême du Canada a rejeté l'appel d'un notaire du Québec qui contestait une décision le tenant responsable envers des acheteurs



Wesley J. Dunn

de biens immobiliers des dommages et intérêts qu'ils devaient payer relativement à une transaction ratée. Pour les fins de notre propos, les détails de l'affaire ne nous intéressent pas.

Quoi qu'il en soit, un second notaire a confirmé aux éventuels acheteurs l'opinion donnée par le premier. Durant le procès, trois notaires ont déclaré que l'opinion de leurs collègues était conforme aux normes d'exercice auxquelles obéirait un notaire avisé et prudent en pareil cas. L'un d'eux était même un notaire qui comptait à son

actif 28 années de pratique et qui enseignait le droit à l'Université Laval. D'après son témoignage, le notaire avait agi « comme il se doit, avec prudence et de la meilleure façon possible dans les circonstances. »

Le juge n'en a pas moins conclu que les témoins étaient dans l'erreur. Aussi, nonobstant le fait que la preuve testimoniale démontrait clairement que le notaire avait agi conformément aux normes de sa profession, a-t-il été tenu responsable de l'erreur commise et, par conséquent, des quelque 6000 \$ alloués en dommages et intérêts. En maintenant la décision de la cour de première instance, la Cour suprême du Canada a conclu que le notaire était coupable de négligence professionnelle.

Un éminent notaire de Montréal ayant 37 ans d'expérience dans la profession a déclaré que la décision de la cour l'avait « très bouleversé », lui et ses collègues.

« Avec cette décision, a-t-il soutenu, il est maintenant impossible pour un notaire de donner une opinion parce que s'il fait une erreur en la donnant, il en sera tenu responsable. Lorsque nous nous occupons d'une affaire, nous sommes tenus aux moyens et non au succès.

« Si l'erreur est commise de bonne foi, si elle procède de principes et de règles d'exercice raisonnables, a-t-il poursuivi, je ne crois pas qu'on doive tenir responsable le notaire, l'avocat ou le médecin. »

Il sera intéressant de voir les conséquences que l'affaire **Roberge c. Boldur** pourra avoir à l'avenir sur les litiges se rapportant à de prétendues négligences professionnelles — et ce, quelle que soit la profession, la dentisterie comprise.

Wesley J. Dunn, professeur émérite
Division de la dentisterie communautaire
Université de l'Ontario occidental

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La réouverture du siège social de l'ADC



On aperçoit l'Hon. Perrin Beatty, ancien ministre de la Santé et du Bien-Être social avec le président de l'ADC, Dr. Gilles Dubé, et le directeur général, M. Jardine Neilson. M. Beatty a loué les rapports que l'ADC entretient avec le gouvernement.

Le 11 avril dernier, l'Hon. Perrin Beatty, alors ministre de la Santé et du Bien-être social, a assisté à la cérémonie marquant la réouverture du siège social de l'ADC, à Ottawa. M. Beatty a prononcé le discours d'ouverture et dévoilé une plaque commémorative devant les quelque 200 personnes invitées à la cérémonie. Les membres du personnel ont fait visiter les nouveaux locaux aux membres du Bureau des gouverneurs, aux présidents des conseils et comités ainsi qu'aux représentants du gouvernement et des organismes de santé alliés venus célébrer l'occasion.

En 1977, lorsque fut inauguré l'immeuble, l'ADC ne comptait que dix-huit employés. Depuis, l'ADC a multiplié le nombre de ses services et a dû de ce fait augmenter son personnel à quarante-cinq membres et agrandir ses locaux. C'est en février 1990 que les travaux de rénovation ont débuté. Les 22 000 pieds carrés que compte l'immeuble ont été réaménagés de manière à rendre les opérations de l'organisme plus efficaces et plus rentables. Ils comprennent maintenant deux nouvelles salles de conférence, une bibliothèque plus spacieuse et plus agréable, des postes de travail modernisés et des services de communication électroniques dernier cri.

Les travaux ont coûté 1,2 million de dollars, soit 74 000 \$ de moins que

prévu. Comme l'argent provient d'un fonds de réserve, le budget des prochaines années ne devrait guère en souffrir.

Le président et le président désigné de l'ADC, les D^{rs} Gilles Dubé et Les Allen, ont remercié les invités de leur présence et tout spécialement les employés de l'ADC qui, pendant plus d'un an, ont souffert des inconvénients causés par les travaux sans jamais interrompre leur travail.

On invite les membres de l'ADC de passage à Ottawa à visiter leur siège social. On leur y réserve en tout temps un accueil chaleureux. Δ

ERRATA

Dans l'article scientifique intitulé *Mitral valve prolapse* paru dans le numéro d'avril, pages 321 à 325, il s'est glissé une erreur. Les doses de clindamycine indiquées dans le tableau IV, page 324, sont incorrectes. Au lieu de 10 g/kg une heure avant traitement et de 5 g/kg six heures après la première dose, il fallait lire :

10 mg/kg une heure avant traitement et 5 mg/kg six heures après la première dose.

La rédaction regrette cette erreur et prie les lecteurs de bien vouloir l'excuser.

Dans le numéro d'avril du *Journal*, nous avons par mégarde transposé les noms d'auteurs de l'article intitulé « Quality Assurance: A Process for Continuous Improvement ». De fait, M^{me} C.L. Valentino est le premier auteur et D^r D.J. Kenny le deuxième.

La Bourse Cal Waddell de la WCDS

La Western Canada Dental Society (WCDS) est l'un des organismes dentaires du Canada les plus anciens. Créée en 1900, elle offrait aux dentistes de l'Ouest — ils étaient peu nombreux alors — l'occasion de se réunir pour des rencontres scientifiques. Quand on songe qu'en 1900 la Saskatchewan et l'Alberta ne faisaient pas partie de la Confédération et que les voyages en voiture à cheval ou en locomotive à vapeur exigeaient plusieurs jours, on ne peut qu'admirer ces pionniers dentaires qui cherchaient à se perfectionner.

En mars 1980, à la suite du décès d'un éminent dentiste de l'Ouest canadien, le D^r Cal Waddell de Calgary, la WCDS a institué un fonds afin de reconnaître sa remarquable contribution à la dentisterie. Le D^r Waddell a été président de la WCDS, de l'Association dentaire de l'Alberta et de la Calgary & District Dental Society.

La bourse créée en sa mémoire rappelle l'esprit des fondateurs de la WCDS. Son but est:

d'offrir une bourse à un étudiant en médecine dentaire du Manitoba, de la Saskatchewan, de l'Alberta et de la Colombie-Britannique qui se distingue par ses connaissances et ses qualités de chef, par sa personnalité et ses sentiments humanitaires, et qui promet de jouer un rôle éminent dans la profession et le milieu dentaires.

Chaque année depuis 1982, la WCDS a octroyé une bourse de 1000 \$ à un étudiant digne de mérite dans chacune des quatre facultés de médecine dentaire de l'Ouest. Auparavant, elle versait à chacune une somme de 5000 \$ dont les intérêts servaient à donner des bourses aux étudiants.

Cette année, la WCDS a décidé de verser à nouveau 5000 \$ aux facultés afin qu'elles créent chacune un fonds dont les intérêts seront accordés:

- au Manitoba, à un étudiant voulant poursuivre des études postdoctorales
- en Saskatchewan, à un étudiant dans le besoin
- en Alberta, à un étudiant voulant faire des recherches
- en Colombie-Britannique, à un étudiant voulant faire carrière dans le milieu universitaire. Δ

La Conférence commémorative Grieve présentée au Congrès de l'ADC



Le Dr Edwin Yen, qui doit prononcer la
Conférence commémorative Grieve 1991.

C'est en mai 1950 que l'Association dentaire canadienne a institué la Conférence commémorative George Wellington Grieve. À cette époque, c'était la première conférence dentaire présentée au Canada et, depuis, elle se veut un hommage à une personne d'un mérite exceptionnel.

Dès les premières années de sa spécialisation, le Dr Grieve s'est affirmé comme un penseur autonome doué d'une étonnante prescience en préconisant que, dans certains cas, les traitements d'orthodontie pouvaient exiger l'extraction de dents permanentes. Pareille affirmation passait alors presque pour une hérésie puisqu'elle allait à l'encontre des enseignements d'Edward Angle qu'on reconnaissait comme "le père de l'orthodontie". Vers la fin de sa vie, le Dr Grieve a eu toutefois le très grand plaisir de voir que le milieu orthodontique souscrivait entièrement à ses idées.

L'un des premiers objectifs poursuivi durant sa carrière fut d'encourager une étroite collaboration entre praticiens généraux et spécialistes en orthodontie en les invitant à se faire mutuellement confiance. Aussi la conférence instituée en sa mémoire contribue-t-elle toujours à atteindre cet important objectif.

Les revenus du fonds de la Conférence commémorative Grieve servent à défrayer les dépenses du conférencier invité dont la sélection se fait par l'intermédiaire du secrétaire de l'ADC à partir des recommandations de l'Association canadienne des orthodontistes. Pour être choisie, une personne doit avoir rendu des services méritoires liés à la science, à l'enseignement et à l'exercice de l'orthodontie.

Cette année, c'est le Dr Edwin Yen qui prononcera la Conférence commémorative Grieve au Congrès de l'ADC. Le Dr Yen est professeur et directeur du

Département de l'orthodontie à l'Université du Manitoba. Comme conférencier invité, il marchera dans la foulée d'orthodontistes de renom comme Robert Moyers, Paul Geoffrion, Tom Graber, Art Storey, Frank Shamy, Michael Wainwright et plus de trente-cinq autres. L'Association canadienne des orthodon-

tistes s'honore de contribuer chaque année au fonds de la Conférence Grieve afin d'en augmenter le capital. Cette année, elle y a versé 3000 \$. Aussi les membres de l'association se font-ils un plaisir de se donner rendez-vous au Congrès de l'ADC pour cette importante conférence. Δ

Octroi d'un fonds de formulation de proposition pour le Projet national d'épidémiologie dentaire

Par l'intermédiaire de son Programme national de recherche et de développement en matière de santé, Santé et Bien-être social Canada a accordé à l'Association dentaire canadienne un fonds de formulation de proposition d'une valeur de 34 500 \$ pour le Projet national d'épidémiologie dentaire. Aussi a-t-on chargé Statistique Canada d'élaborer un échantillonnage en vue du projet et de choisir des groupes représentant les enfants de 13 et 14 ans, les adultes de 25 à 34 ans et de 35 à 44 ans, et les gens âgés de 60 à 74 ans. Au cours des huit prochains mois, on doit rédiger une proposition afin d'inviter les gouvernements fédéral et provinciaux à subventionner conjointement la première partie de la première étude sur la santé bucco-dentaire des Canadiens.

Le comité qui a élaboré ce projet au cours des trois dernières années comprend les Drs A. Ismail et K. Zakariasen (Halifax), le Dr J.M. Brodeur (Québec), le Dr M. Payette (Montréal), le Dr D.W. Lewis (Toronto), le Dr D. Banting (London) et les Drs J.A. Hargreaves et G.W. Thompson (Edmonton), ce dernier agissant comme président. Le Dr M.I. MacEntee (Vancouver) doit remplacer le Dr Hargreaves qui vient d'accepter le poste de directeur de l'École de dentisterie de Trinidad, dans les Antilles.

Les objectifs du projet sont les suivants :

1. obtenir des données épidémiologiques dentaires provinciales, régionales et nationales qui sont d'une importance particulière pour les besoins actuels et ceux de l'avenir (on accordera la priorité aux adultes et aux gens âgés);
2. déterminer les pourcentages d'utilisation et de demande touchant les services dentaires;
3. déterminer les besoins, notamment :
 - (a) les besoins des régions,
 - (b) les besoins des autochtones,
 - (c) les besoins en ressources

humaines pour l'an 2000 et leurs conséquences,

- (d) les besoins en matière de cours,
- (e) les besoins en matière d'enseignement,
- (f) les besoins en éducation permanente, et
- (g) les besoins touchant les soins à donner en priorité aux personnes.

Pour tout de suite, le projet cherchera à intégrer les indices épidémiologiques « traditionnels » comme base de données, mais non comme seule méthode de compilation. Ces indices ont fait l'objet d'une révision au besoin afin de pouvoir tenir compte de l'évolution des maladies (par exemple, le SIDA) ainsi que des besoins et des demandes, tant ceux d'aujourd'hui que ceux de demain. Par ailleurs, l'étude sociale doit faire appel à des méthodes qui ont été éprouvées lors de la deuxième étude que l'Organisation mondiale de la santé a menée en collaboration avec dix pays. Elle comprendra en outre divers indices touchant la mastication, les maux de dents et les désordres de l'articulation temporo-mandibulaire. Quant à la formule pour l'étude clinique, on l'a déjà mise à l'essai en Nouvelle-Écosse et au Keewatin.

Pour la première partie de l'étude, on commencera à faire des essais pilotes et à recueillir des données dans les Maritimes. Une fois ces essais terminés, on élaborera une proposition afin de pouvoir obtenir des subventions pour les études qu'on fera au Québec et dans les provinces de l'Ouest. La dernière partie de l'étude portera sur l'Ontario. Dans chaque province ou groupe de provinces, il y aura un comité coordonnateur chargé de surveiller le déroulement de l'étude.

Les données recueillies donneront un aperçu des services dentaires que les Canadiens reçoivent actuellement et des traitements dont ils ont besoin. Elles revêtiront une grande importance pour l'élaboration des programmes de soins dentaires de l'avenir. Δ

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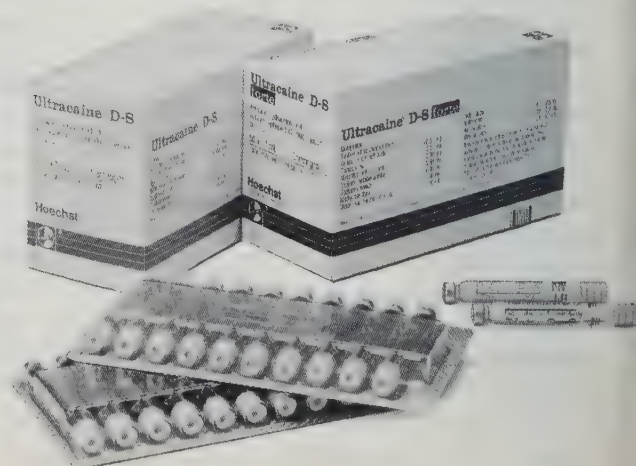
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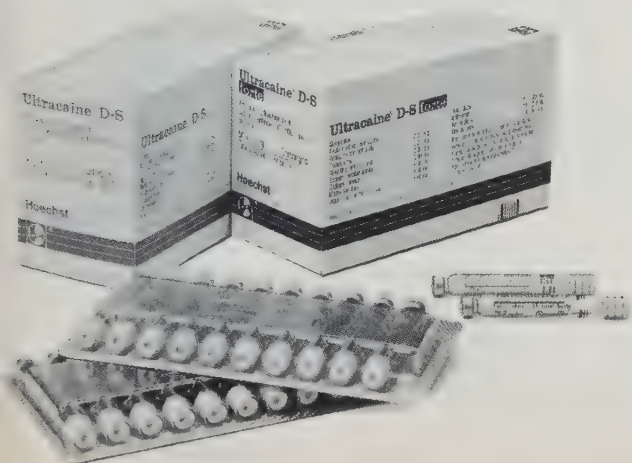
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* Pour documentation voir p. 485.

Obituaries/Nécrologie

Bradey, W.F.: A graduate of the Royal College of Dental Surgeons in 1923, Dr. Bradey died on March 23, 1991 in his 94th year.

Cherewan, G.: Dr. Cherewan emigrated to Winnipeg from the Ukraine in 1949. He graduated from the Faculty of Dentistry at the University of Alberta in 1960 and maintained a private practice in Winnipeg for 31 years. An accomplished linguist, Dr. Cherewan could speak eight languages.

Dore, E.G.: Dr. Dore was a graduate of the University of Toronto in 1935 and practised dentistry in Hamilton, Ontario. He was a Life Member of the Canadian Dental Association.

Franklin, G.: Dr. Franklin was a graduate of McGill University in 1922. He was a lecturer and clinical assistant at the Department of Orthodontics in the dental faculty and, from 1948 to 1960, he was Professor and Head of the Depart-

ment. Dr. Franklin was a member of the Canadian Dental Association and many local, national and international orthodontic organizations.

Green, H.J.: Dr. Green graduated from the University of Toronto in 1970 and practised dentistry for 17 years in Ottawa. He retired in 1987 and set sail on his custom-designed boat "Northern Magic", which he had built himself. He died suddenly in Trinidad on April 14, 1991.

Laroche, L.: Diplômé de la Faculté de médecine dentaire de l'Université de Montréal en 1925, le Dr Laroche est décédé le 30 mars 1991.

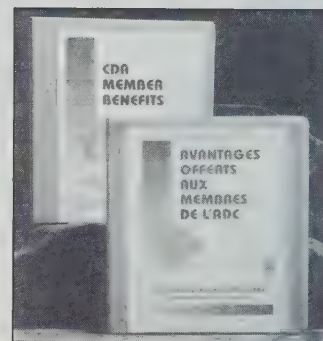
Pitea-Paomees, A.: Dr. Pitea-Paomees graduated from the University of Tartu in Estonia in 1935 and received her Doctorate of Dental Surgery from the University of Stockholm in 1948 and graduated from the University of Toronto in 1956. She was a Life Member of the Canadian Dental Association.

Rudell, C.A.: Dr. Rudell graduated from the Faculty of Dentistry of the

University of Toronto in 1931. He was a Life Member of the Canadian Dental Association.

Simon, M.L.: Dr. Simon was a graduate of the Faculty of Dentistry of McGill University in 1923. He was a past president of the Mount Royal Dental Society.

CDA "Grad-Pak" Acclaimed by Students



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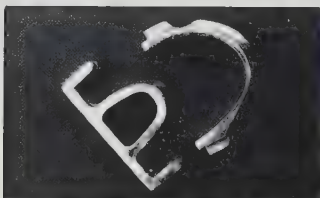
The "CDA Member Benefits" manual has been highly acclaimed by the 1991 graduates of Canada's dental faculties. Everything you wanted to know about the CDA is contained in one large, three-ring binder. The Dental Awareness Program, the GST and Hazardous Waste Manuals, the Library/Resource Centre, CDAnet and insurance plans are only a few of the enumerated advantages of being a CDA member.

CDA has always had an informational kit for new graduates, but at its March 1991 meeting, the membership committee determined that a new, "upbeat" version was needed.

Key members in the communications department recognized that they faced a monumental task if the manual was to be ready in time for the 1991 graduates – they had barely three weeks from drawing board to mail room. But they did it! Under the guidance of Linda Teteruck, director of communications, Louise Després Jones created miracles on her desktop computer, Cynthia D'Errico wrote reams and reams, and Kelly Klassen's mailroom crew sorted and collated over 104,000 separate pieces of material.

This is just one more example of how CDA goes that extra mile for students, new graduates, and every dentist in Canada. Δ

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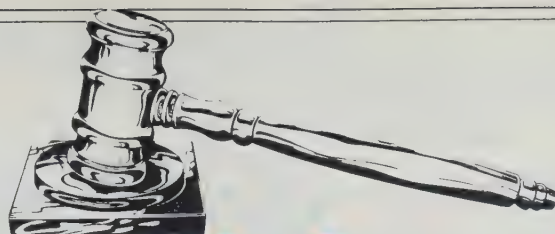


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Notre assurance RC Umbrella de la vie privée va au-delà de votre assurance en première ligne normale pour couvrir le patrimoine que vous avez si durement acquis. Notre contrat vient s'ajouter à vos contrats responsabilité civile et automobile pour augmenter vos montants de garantie.

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dollars au titre de vos contrats responsabilité civile et automobile normaux.

Assurance RC professionnelle... pour vos activités professionnelles

L'assurance de la RC professionnelle vous couvre contre les conséquences de la responsabilité civile que vous pouvez encourir du fait de services professionnels ou de fautes de votre part ou de la part de quelqu'un dont vous êtes responsable. Ici encore, *un petit supplément de prime vous donne un gros supplément d'assurance*. Par exemple, un montant de \$ 1 000 000 (avec une franchise de \$ 500) est disponible pour une prime annuelle de seulement \$ 643... et un montant de \$ 5 000 000 de garantie (avec une franchise de \$ 500) ne coûte que \$ 829 par an.

A vous de juger

Les témoignages concordent : la protection contre les conséquences de procès offerte par l'assurance RC Umbrella de la vie privée du RADC et une bonne garantie responsabilité civile professionnelle doivent faire partie intégrante de votre portefeuille d'assurances. Les deux vous sont offertes par le RADC — qui est parrainé par l'Association dentaire canadienne et les associations provinciales — et qui propose des garanties conçues en fonction des besoins de la profession dentaire.

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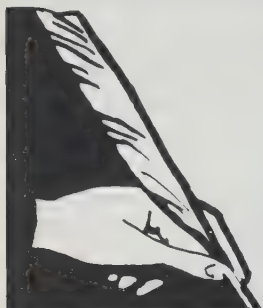
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Note aux dentistes du Québec : Depuis le 1^{er} janvier 1991, les dentistes doivent être membres de l'Association dentaire canadienne pour demander ces assurances ou faire relever leurs montants de garantie. En outre, l'assurance RC professionnelle du RADC n'a pas pour but de remplacer à quelque égard que ce soit l'assurance obligatoire exigée par les organismes régissant la profession en Ontario et au Québec.



Propy Fees

I wish to respond to a letter published in the March '91 edition of the *Journal*. The title read "Dental Fees" and was written by Isadore Wolch as a complaint against dental cleaning fees.

At first, I found his remarks humorous and turned the page, with a grin on my face. Later, however, I began to wonder if there exists another reader who thinks — or should I say, fails to think — in this manner. If there is someone who agrees with 'Dr.' Wolch, then this issue of prophylaxis fees needs to be addressed.

Let us look at Wolch's letter and assess his rationale: "I remember when the fee for a prophylaxis was \$5-10." What kind of thinking is this? I will bet he can also remember when automobiles were selling for \$2000, but is that an argument for writing to *Road and Track Magazine* complaining of car prices?

"I remember (when a prophylaxis was performed by the dentist, not the hygienist)". What does this mean? I hope that by training professionals strictly in preventive procedures, the quality of dental cleanings has improved. If both the dentist and hygienist are equally qualified to perform a specific service, it should be worth a given amount regardless who delivers it. Such is the case for dental cleanings.

"The main point I would like to stress is that if the dental profession is looking for good P.R. it certainly won't achieve it charging \$54 for a cleaning."

The main point I would like to stress is that if the dental profession is looking to maintain and establish credibility with the public, it has to place a high value on prevention. I seldom hear dentists from the "old school" question fees of services other than preventive favors. It's time to realize that today's family wants dental care from a preventive oriented practice. If a dentist truly values a preventive service such as scaling or prophylaxis that takes 2 units of time to perform, he will not

question the suggested fees in the fee guide. He will, rather, channel his energies into promoting OHI and preventive care. I believe this will attract more patients to a clinic than lowering preventive fees.

To rest Dr. Wolch's argument, dare to compare \$54 for a 1/2 hour cleaning to \$35 for a 2-minute extraction.

Sorry, Dr. Wolch; Maybe you colleagues of 1932 would agree with you but for practising dental professionals in 1991, we possess a freshly, evolved attitude about dentistry and the value of our preventive care. We are saving teeth and giving patients a mouth to be proud of: Isn't that worth \$100 per year, per person?

Bill Nippond, RDH
Grand Falls, Newfoundland

Propy Fees

I was interested in the comments made by Dr. Isadore Wolch in the March issue of the *Journal* concerning prophylaxis fees, and the editor's note inviting readers' comments.

Some weeks prior to receiving your March issue, I received, amongst others, a letter from one of my newspaper column readers, on the very topic that Dr. Wolch addresses. I should also point out that this is not the first letter received on this topic and I forward it solely so that your readers may be afforded some insight into the public's perceptions.

I am not afraid of the drill. In fact, whatever dental work needed is done in my mouth without the use of anaesthetic (some exceptions do apply). My fear is of the bill.

On my last visit to my dentist I was presented with a bill for \$119.47 for cleaning done by a hygienist. The dentist did come in to "examine" my teeth although I was not sure if it was not a challenge to break Dr. Roger Bannister's world 1 mile record.

I did check the accuracy of the billing with the Ontario Dental Association and was assured that it was indeed correct for a service performed by a trained hygienist under the dentist's supervision. My opinion is that it is simply obscene. I have spent 1 1/2 days work performed by a technician in less than 45 minutes. Yes, it takes me 1 1/2 days to earn that money.

Insurance is another myth. Unless you have group insurance the cost of it would amount, for my wife and I, to \$55.00 per

month for 80% of the coverage and thus is beyond my means.

As soon as the dental profession comes under a system such as OHIP for our other physical problems then people will come regularly for their semi-annual check-up. As it is now, one waits for an emergency. Perhaps it is foolhardy but what is the solution? Perhaps dental fees should be adjusted to the needs of the population rather than the exclusive need of the dentists. The public won't accept the present situation for too much longer.

Malcolm Yasny, DDS, MSc

(Dr. Yasny is in private orthodontics practice in Toronto and writes a weekly column, "Your Teeth" in the *Toronto Star*.)

Propy Fees

With regard to Dr. Wolch's letter (March '91) regarding the fee for a "cleaning", I think of a "prophylaxis" as a supra-gingival polishing, and have established a fee for a "prophylaxis" which is a little over half that suggested in our fee guide. If I do some scaling, the receptionist knows this as "scale-and-prophylaxis", this means "use the full fee in the fee guide for a prophylaxis." If I spend a unit of time scaling and then polish, it's "1u scaling plus prophylaxis", in which case the prophylaxis fee is reduced back to the first amount. Of course many insurance plans reimburse 100% for a "prophylaxis" but anywhere from 0% to 80% for "scaling", so to be fair, the receptionist must code "1u scale plus prophylaxis" in my system as "full fee prophylaxis plus a bit of scaling" to fit their system.

Sound confusing? You bet!

The issue of when scaling is part of a prophylaxis (a preventive treatment) and when it is periodontal therapy has always eluded me. A heavy smoker with supra-gingival calculus and no periodontal bone loss who has a cleaning once every five years whether it's needed or not can easily use up 3 units of time for a supra-gingival "prophylaxis". The meticulous homecare periodontal patient may take half that time to thoroughly clean.

In my office, a "cleaning" is the removal of extraneous deposits wherever they are on the teeth. The "supra-gingival scaling" school of prophylaxis aids in the supervised neglect of periodontal disease, because the therapist develops a blind spot to the sulcus. My

dictionary defines prophylaxis as having to do with disease prevention. How can removing a bit of supra-gingival stain and calculus, and ignoring the sub-gingival deposits be considered disease prevention? Polishing is polishing, scaling is scaling and perhaps we should simply reserve the term "prophylaxis" for things like antibiotics given to heart disease patients before treatment.

*K.M. Black, BSc, DMD
Bathurst, New Brunswick*

ATTENTION ALL DENTISTS

The Canadian Dental Association has learned that **Paradise Jewellery** is offering a "special" to members, associates and employees of the CDA. Paradise Jewellery bills itself as "Canada's foremost jewellery manufacturing company". In a mailing to Canadian dentists, the company offers a 50% savings on a variety of catalogue items. The flyer goes on to state, "We have not as yet received official endorsement for the association."

In fact, the company has never requested endorsement. The offer was initiated by Paradise Jewellery without the knowledge or consent of the Canadian Dental Association, and is in no way endorsed by the Association. Lawyers for the CDA have ordered Paradise Jewellery to release a statement acknowledging that they have not requested, nor expect to receive, official endorsement from the Association.

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BUREAU DES GOUVERNEURS AVIS D'ASSEMBLÉE

L'assemblée annuelle du Bureau des gouverneurs de l'Association dentaire canadienne aura lieu les 23 et 24 août 1991 (vendredi et samedi respectivement), au Centre des congrès à Québec. L'assemblée débutera à 9 heures, le 23 août.

Veuillez noter que tous les membres de l'Association dentaire canadienne ont droit d'assister aux assemblées du Bureau des gouverneurs.

Le Bureau des gouverneurs comprend vingt-huit membres ayant le droit de vote et un président d'assemblée. Les gouverneurs représentent les membres du pays dans une proportion de 1 pour 500. Le Service dentaire des Forces canadiennes, les membres étudiants et les membres affiliés du Québec sont représentés par un membre chacun.

De plus, il y a deux membres sans droit de vote, à savoir le représentant dentaire principal du ministère de la Santé et du Bien-être social du Canada et celui du ministère des Affaires des anciens combattants.

Voici la liste complète des membres du Bureau des gouverneurs :

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Dental Emergencies

Les urgences dentaires

1. Anderson, P.E. "Effectively handling medical emergencies." *Dental Economics*. Nov. 1989; v. 79(11), pp. 54, 56, 58-90.
2. Beckelheimer, R.G. and Longo, N.M. "A study of the reasons for patients seeking after hours emergency dental treatment." *Military Medicine*. Apr. 1989; v. 154(4), pp. 174-7.
3. Bhat, M. and Li, S.H. "Consumer product-related tooth injuries treated in hospital emergency rooms: United States, 1979-87." *Community Dentistry and Oral Epidemiology*. Jun. 1990; v. 18(3), pp. 133-8.
4. Cohen, H.V. and others. "Management of the acute TMJ emergency." *Clinical Preventive Dentistry*. Mar.-Apr. 1989; v. 11(2), pp. 29-32.
5. Edmondson, H.D. "Medical emergencies in dental practice: an update on drugs and the management of acute airway obstruction." *Dental Update*. Jul.-Aug. 1989; v. 16(6), pp. 254-6.
6. Fleury, A.A. "Local anesthesia failure in endodontic therapy: the acute inflammation factor." *Compendium*. Apr. 1990; v. 11(4), pp. 210, 212 passim.
7. Kaba, A.D. and Marechaux, S.C. "A fourteen-year follow-up study of traumatic injuries to the permanent dentition." *ASDC Journal of Dentistry for Children*. Nov.-Dec. 1989; v. 56(6), pp. 417-25.
8. Klokkevold, P. "Common dental emergencies. Evaluation and management for emergency physicians." *Emergency Medical Clinics of North America*. Feb. 1989; v. 7(1), pp. 29-63.
9. Malamed, S.F. "Emergency medicine in dentistry." *Journal of the Tennessee Dental Association*. Jan. 1989; v. 69(1), pp. 14-16.
10. McCarthy, F.M. "Safe treatment of the post-heart-attack patient." *Compendium*. Nov. 1989; v. 10(11), pp. 598-604.
11. Miller, T.E. "Geriatrics, emergencies, and visible light-cured dentures." *Compendium*. Nov. 1989; v. 10(11), pp. 610-5, 818-9.
12. Mueller, W.A. "Emergency dental care." *Pediatrician*. 1989; v. 16(3-4), pp. 147-52.
13. O'Neil, D.W. and others. "Oral trauma in children: a hospital survey." *Oral Surgery Oral Medicine Oral Pathology*. Dec. 1989; v. 68(6), pp. 691-6.

14. Nathan, J.E. "Management of the difficult child: a survey of pediatric dentists' use of restraints, sedation and general anesthesia." *ASDC Journal of Dentistry for Children*. Jul.-Aug. 1989; v. 56(4), pp. 293-301.
15. Pollock, R.M. and Levenson, M.D. "The endodontic emergency: practical methods of management." *Compendium*. May 1989; v. 10(5), pp. 268, 270-2.
16. Ruddy, R.M. and Selbst, S.M. "Three-wheeled vehicle injuries in children." *American Journal of Diseases of Children*. Jan. 1990; v. 144(1), pp. 71-3.
17. Siegel, R.L. and others. "Tongue ischemia from a soft-drink can: report of a case." *JADA*. Nov. 1990; v. 121(5), pp. 607-8.
18. Theisen, F.C. and others. "Self perceptions of skill in office medical emergencies." *Journal of Dental Education*. Oct. 1990; v. 54(10), pp. 623-5.
19. Young, E.R. and others. "Acute chest pain during dental treatment — a case report." *Journal of the Canadian Dental Association*. May 1990; v. 56(5), pp. 437-40.

New Acquisitions

- American Association of Dental Schools. *Admission requirements of U.S. and Canadian Dental Schools: 1991-1992*. Washington, DC: The Association, 1990.
- Berning, K. Randall. *Solo group formation: practical and legal issues*. Chicago: Randall K. Berning & Affiliates Publication, 1990. (The expert series for dentists.)
- Canada. Health & Welfare Canada. *National health expenditures in Canada 1975-1987/Les dépenses nationales de santé au Canada 1975-1987*. [Ottawa: Health & Welfare, 1990.]
- Domer, Larry R. *Steps to consider before bringing on an associate in planning to sell all or a portion of your practice*. Chicago: Randall K. Berning & Affiliates Publication, 1990. (The expert series for dentists.)
- Haverkamp, James A. *Check lists for review of purchase and sale agreements*. Chicago: Randall K. Berning & Affiliates Publication, 1990. (The expert series for dentists.)
- Melsen, Birte, editor. *Current controversies in orthodontics*. Chicago: Quintessence, 1991.
- Mütherthies, Klaus. *Replication of anterior teeth in the four seasons of life*. Chicago: Quintessence, 1991.

Paterson, R.C. and others. *Modern concepts in the diagnosis and treatment of fissure caries*. Chicago: Quintessence, 1991.

Runnells, Robert R., editor. *Infection control and office safety*. Dental Clinics of North America. Philadelphia: Saunders, 1991.

Schluger, Saul and others. *Periodontal diseases: basic phenomena, clinical management, and occlusal and restorative interrelationships*. — 2nd ed. — Philadelphia: Lea & Febiger, 1990.

Wood, Norman K. and Goaz, Paul W. *Differential diagnosis of oral lesions*. St. Louis: Mosby, 1991.

Video — VHS

Oral care for the dependent patient, produced by West Virginia University School of Dentistry and Geriatric Program. 20 min., 1990.



One copy of the above package of articles is available for \$5.00 to all CDA members and for \$10.00 to non-members. (G.S.T. and, Ontario residents, please include 8% sales tax.)

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¹ American Dental Association Council on Dental Therapeutics. Acceptance of (synthetic phenol) disinfectant for instruments and equipment. JADA 110 394, 1985



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DENTAL MATERIALS: PROPERTIES AND MANIPULATION

by William J. O'Brien

1988. Quintessence Publishing Co. Inc., Chicago. 603 pages, B&W illustrations.

This well written and richly illustrated text is a pleasure to read. All the key clinical characteristics of the materials are clearly identified and discussed. Three excellent chapters at the end of the book will ensure that this text will be consulted throughout the practice day. Two of these chapters summarize properties important to dental practice, the manipulative variables, the indications and contraindications for using the materials, and the method of choosing the most suitable dental material. This information is illustrated effectively by means of twenty case presentations. The third chapter is a concise and very practical presentation of the biological interaction of dental materials. A short paragraph describes the clinical effects and lists the causative agents for most of the materials currently used in general dental practice.

In each chapter, the subject matter is presented briefly and simply and is followed with clinical examples. A glossary and a set of sample questions complete with answers is provided at the end of each chapter. This is very effective and the questions serve to help identify the relevant material in the chapter. The serious reader would be well advised to compliment this text with one of the many excellent and more sophisticated dental materials texts currently available.

Most chapters discuss recent developments in the subject area. A very useful feature of a few chapters is a section describing new developments that, although they are not yet applicable to clinical dentistry, may be so in the near future. Such information alerts practitioners to new technology and should be helpful in allowing them to keep up with the rapid changes occurring in dentistry. However, there is no information on CAD/CAM, and only a short paragraph on dental lasers, both of which are likely to have a profound impact on the selection and use of dental materials within the next decade.

Each of the twenty-eight chapters is written by a different author, most of whom are easily recognized by those familiar with the discipline of dental

materials. In spite of excellent editing, the change in writing style can at times be unsettling when reading several chapters together. Often a topic is briefly introduced in one chapter and then is discussed more completely in a subsequent chapter. Some form of cross-referencing would prevent the reader from missing important information that was presented elsewhere in the book. The chapter on composite resins is disappointingly short. It is only half as long as the chapter on gypsum products and the same length as that on gold foil. Surprisingly, very little is written about the light curing technique and resin to dentin bonding is limited to less than one page.

An extensive appendix provides all you want to know about the values of the properties of selected brands as well as a complete listing of dental manufacturers and suppliers. Although manipulative variables and their effect on properties and clinical performance are adequately addressed in most chapters, this is not a technique manual. The reader will need to consult product brochures or other texts in order to learn proper preparation or manipulation of a material.

In summary, this is an excellent text which is concise, accurate, complete and current. It is well illustrated with both clinical examples and photographs. It will be frequently used, much appreciated and a most valuable addition to any dental office.

This book was reviewed by:
Dr. Peter Williams
Associate Professor and Head
Section of Dental Materials Science
University of Manitoba

HEADACHE AND FACIAL PAIN: DIAGNOSIS AND MANAGEMENT

Edited by Alan L. Jacobsen
William C. Donlon

1990, Raven Press, New York
332 pages, B&W illustrations

This 332-page, hard-cover, first-edition book is divided into 12 chapters, authored by some 20 contributors. It covers the wide multi-disciplinary approach required to handle patients with both acute and chronic facial and head pain of various etiologies.

The initial chapter reviews, in considerable detail, the anatomy, physiology and pathophysiology of orofacial pain and is

written by the dean of the University of Toronto, Dr. B.J. Sessle. (In fact, almost half of the contributors have a dental training background.) The second chapter analyzes the psychologic and behavioral aspects of chronic facial pain.

In the remaining chapters, the reader is led in an orderly fashion through the gamut of disorders that may cause head and neck pains. Each chapter introduces the neural, pathophysiologic and anatomic basis of pain for each of the particular systems which may be involved. These include mucosal, vascular, temporomandibular joint, ocular, otic, muscular, neurological, and, finally, head injury considerations. In addition, each chapter reviews the pertinent anatomy and physiology before describing the plethora of disorders in considerable detail, discussing actual diagnosis and treatment, and then commenting on overall prognosis.

Each chapter is directly referenced within the body of the text, with a complete bibliography following at the end. The text concludes with a useful subject index. The book is well-illustrated and generally follows a theme, which most dentists would appreciate. Despite this, the average general dental practitioner could have considerable difficulty reading some parts of this book, as the authors frequently assume more than a basic working knowledge of medicine and some of its specialties. This does not, however, undermine its overall usefulness as it is organized in a manner that allows the reader to find specific and complete information on many topics without reading from cover to cover. While a 300-page book cannot be all-encompassing in its discussion of items such as the pharmacology of the drugs mentioned, its overall approach seems to fulfil its objective of bringing together the contributions of the many health care specialties that treat patients with headache and facial pain.

This is a very useful text not only for general dental and medical practitioners, but also in particular for those with a special interest in this area. It is ideally suited to those whose specialty training involves actual diagnosis and treatment of these patients on an ongoing basis.

Reviewed by:
Earle R. Young, BSc, DDS, BScD, MSc,
FADSA
Assistant Professor and Acting Head,
Department of Anaesthesia,
Faculty of Dentistry,
University of Toronto and
The Wellesley Hospital, Toronto

AIDS AND THE MOUTH

D. Greenspan, J.S. Greenspan,
M. Schiodt, J.J. Pindborg

1990, Munksgaard, Copenhagen
204 pages, color illustrations

Contrary to the authors' statement, this is not a second edition of a previous monograph but a new book with a new title; and it is a disappointment. Readers will have to search diligently among its approximately 200 pages to find any significant new findings concerning HIV infection, AIDS and the practise of dentistry.

The first 80 pages offer a review of the scientific literature concerning the syndrome. Such subjects as definitions, epidemiology, etiology, pathogenesis, animal models, transmission routes and HIV testing are discussed in a series of short chapters. Although brief, the subject matter may be of limited interest to general practitioners especially as there is a reliance upon tables and figures which are misplaced, difficult to read and wrongly titled. For example: Figure 3-2 is acknowledged on page 27 of the text but is located on page 36; the black print within the royal blue columns in figures 4.8 and 8.1 is almost invisible. Figure 4.5, illustrating the life cycle of HIV, is too small and somewhat simplistic, while a figure showing the polymerase chain reaction would have complemented the written description. The brevity of these chapters reduces their value to graduate students and specialists but the relevant references will be of interest.

The latter portion of the book focuses on the mouth, and it does have some redeeming features. Generally, the clinical photographs are apt and of high quality. There are comprehensive reviews of hairy leukoplakia and Kaposi's sarcoma, with a welcome, but very short, description of the oral manifestations of pediatric AIDS. Interestingly, this chapter does include the pertinent clinical information that children with AIDS may have delayed tooth eruption patterns. Apart from the fact that acetaminophen may affect the metabolism of AZT and that dextrane sulphate (an AIDS systemic drug) may prolong bleeding, chapter 17, "Treatment of oral manifestations" is redundant as much of the therapy is discussed in previous chapters. Table 17, which is a synopsis of the diagnosis and management of oral disease, would be better suited in an appendix as would all of the tables in chapter 18. Chapter 18 is on "AIDS and infection control" and contains no new material. In fact, its contents may be

dated because of new policies related to HIV-infected health care workers and recent studies which question the efficacy of common Environmental Protection Agency (EPA) approved disinfectants.

This review is not the medium to debate some of the conclusions adopted by the authors based upon their analysis of the literature. However, it does seem pithy to doubt an association between oral squamous cell carcinoma and HIV infection while accepting single cases of opportunistic infections whose presence may be due to systemic pharmacologic agents rather than HIV. Indeed, there is a paucity of information on how drug therapy for other opportunistic infections may or may not modulate oral disease in AIDS. The authors state that HIV neuropathy and AIDS dementia are of increasing clinical importance. This is true especially in assessing the competency of HIV-infected dental personnel. Therefore, it is unfortunate that the very brief chapter on neurologic manifestations only presents a few examples of patients with facial paralysis and ignores the issue of dementia. Considering the reservations which are being expressed doubting the etiologic role of HIV in AIDS, it may have been prudent for the authors to have been less

dogmatic regarding their opinions of the causative agent. Finally, it would be useful to have a definition of seropositivity that is uniformly applied. In some instances it appears to imply every state short of "full blown" AIDS, while in other contexts it is interpreted as meaning HIV antibody positivity without symptoms.

There are numerous grammatical errors throughout this book, which, combined with convoluted syntax and awkward placement of tables and figures, make for difficult reading. Apart from a few scientific details which have not been included in previous texts on "Oral AIDS," this book contains few clinical facts which would not already be known to the concerned and informed general practitioner. This is unfortunate because the authors have – justifiably so – international reputations in the discipline of oral pathology, particularly as it relates to the study of AIDS. However, in this reviewer's opinion, their first book is superior to this, their second effort.

Reviewed by:
John Hardie BDS, MSc, FRCDC
Head, Department of Dentistry
Vancouver General Hospital

Régime d'épargne-retraite de l'ADC

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	30 avril 1991	31 mars 1991
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	30 avril 1991	31 mars 1991
Durée		
1 an	9,15%	9,35%
2 ans	9,40%	9,60%
3 ans	9,50%	9,60%
4 ans	9,50%	9,60%
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Le CDSPI : à votre service

Le Canadian Dental Service Plans Inc. (CDSPI) est un organisme dont les dentistes canadiens sont propriétaires et qu'ils gèrent par l'intermédiaire de l'ADC et de leurs associations provinciales. Autrement dit, comme praticien dentaire professionnel, vous êtes copropriétaire de cet organisme sans but lucratif.

Aussi, derrière le logo bleu clair du CDSPI, trouverez-vous plus de cinquante personnes pour vous appuyer dans vos projets personnels et professionnels — des personnes qui comprennent la profession dentaire, qui connaissent les besoins des dentistes et qui sont là exclusivement pour vous offrir des renseignements, de l'aide et de précieux services.

Depuis ses débuts en 1959, le CDSPI s'est beaucoup développé, créant sans cesse de nouveaux produits et services pour répondre aux besoins changeants des professionnels dentaires au Canada. En effet, le CDSPI est géré uniquement pour servir vos intérêts et ceux de vos collègues. Ses programmes et ses services s'adressent seulement à vous, aux membres de votre famille et, dans certains cas, à vos employés. En dehors de la profession, personne ne peut jouir des avantages qu'offre le CDSPI. Ce n'est **ni** une compagnie d'assurance, **ni** une société de courtage, **ni** une agence qui vend de l'assurance. **C'est** une source fiable et ordonnée de compétences dans divers domaines qui sont importants pour vous.

Le régime d'assurance des dentistes du Canada

Le CDSPI fait connaître et administre le Régime d'assurance des dentistes du Canada (RADC) qui offre douze régimes d'assurance différents pour vous protéger, vous, votre famille et votre cabinet. Le RADC passe pour le régime d'assurance le plus complet offert à un groupe de professionnels au Canada. Le CDSPI se charge en votre nom des tâches administratives, y compris les souscriptions et la perception des primes.

Pour vous renseigner sur le RADC et vous aider à choisir le régime qui vous convient, le CDSPI met à votre disposition des lignes téléphoniques sans frais ainsi qu'un service d'analyse des contrats qui vous aide à juger les polices et les offres qu'on peut vous faire en vous fournissant

des renseignements précis sans parti pris.

Pour la plupart de vos besoins en assurance, vous n'avez, grâce au CDSPI, qu'un seul service de renseignements à consulter. L'organisme se charge pour vous de négocier avec les assureurs et les autres sources extérieures. En outre, il travaille en étroite collaboration avec des consultants et des courtiers en assurance ainsi qu'avec de grandes compagnies d'assurance canadiennes afin d'assurer que le RADC offre les meilleurs garanties à des taux défiant toute concurrence.

Assurance-maladie complémentaire

Dans certaines provinces, le CDSPI administre des régimes d'assurance-maladie complémentaire au nom des associations dentaires. Ces régimes couvrent les frais médicaux que les régimes gouvernementaux ne défraient pas. Pour ces régimes, le CDSPI se charge des mêmes tâches administratives que pour le RADC.

Le Régime d'épargne-retraite de l'ADC

Géré par le CDSPI, le Régime d'épargne-retraite de l'ADC vous offre cinq choix de placements : le fonds d'obligations et d'hypothèques, le fonds d'action ordinaire, le fonds garanti, le fonds équilibré et le fonds de placements garantis.

Pour vos placements, vous pouvez choisir un ou plusieurs de ces fonds tout en évitant les frais d'administration souvent prélevés dans d'autres RER. L'excellent rendement de ces fonds vous permet de vous constituer un bon revenu à la retraite et d'épargner sur vos impôts. Le CDSPI suit de près ce régime afin d'en assurer un rendement optimal.

Le FERR et le Service de renseignements sur les rentes

Il s'agit d'un service spécial que le CDSPI a créé pour vous renseigner sur les différentes sortes de rentes dont vous pouvez jouir lorsque votre RER vient à échéance afin de pouvoir choisir la formule qui vous convient le mieux. Ce service est offert gratuitement aux participants du RER de l'ADC.

Le séminaire sur la planification de la retraite

Sachant qu'une bonne planification

est nécessaire pour réussir sa retraite, le CDSPI a préparé à l'intention des dentistes et de leurs conjoints un séminaire de deux jours sur ce sujet. Comme on y aborde des questions d'importance capitale pour tous les dentistes, c'est une façon pratique et agréable pour vous d'apprendre comment atteindre vos objectifs de retraite. Plus de 1300 dentistes et leurs conjoints ont suivi ce séminaire qui est mis à jour chaque année afin de tenir compte des nouvelles lois fédérales et provinciales ainsi que des nouvelles possibilités de placements.

Le DOMS^{MD} : le système de gestion du cabinet dentaire

Un système complet comprenant matériel, logiciel, formation et assistance, le DOMS [Dental Office Management System — Système de gestion du cabinet dentaire] offre aux dentistes tous les avantages liés à l'automatisation du cabinet ainsi que les avantages spéciaux du CDSPI. Reflétant les derniers progrès de la technologie informatique, le DOMS a été mis au point en tenant compte des besoins du cabinet grâce à la parfaite connaissance qu'en a le CDSPI.

Le DOMS est un système informatique multi-tâches et multi-usagers. Il suit le déroulement des opérations dans un cabinet à partir du moment où un patient demande un rendez-vous : carnet de rendez-vous, feuilles de route, traitements, paiements, demandes d'indemnité, rapports quotidiens, rapports mensuels, rappels des patients, etc. En outre, le DOMS est maintenant relié au CDAnet, le réseau d'échange de données informatisé. Parce que le CDSPI s'est engagé à bien vous servir, vous pouvez compter sur le DOMS pour tous vos besoins informatiques — ceux d'aujourd'hui comme ceux de demain.

Pour de plus amples renseignements

Si vous désirez en savoir davantage sur les programmes et les services du CDSPI, veuillez nous écrire ou nous téléphoner sans frais. De plus, nous vous invitons à nous rendre visite à votre loisir. Si vous nous le demandez à l'avance, nous organiserons une rencontre afin de vous parler assurance, de vous renseigner sur le RER de l'ADC ou de vous faire une démonstration du DOMS.

Ne l'oubliez pas, le CDSPI est à votre service et travaille pour vous.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

LE POINT SUR LE CONGRÈS

Le volet social : de tout pour tous !



Comme les activités sociales forment un important volet du congrès annuel de l'Association dentaire canadienne, l'organisation ne ménage aucun effort pour rendre aussi agréables qu'instructives ces assises annuelles; il en va de même cette année.

La cérémonie d'ouverture, qui se déroulera au Grand-Théâtre de Québec,

fraîchement rénové, offrira une soirée éblouissante et pleine d'entrain, mettant en vedette quelques-uns des meilleurs talents québécois. Cette activité devient vite une tradition au congrès annuel de l'ADC et les villes hôtes rivalisent d'ingéniosité pour monter un spectacle qui fera valoir les talents et les étoiles de leurs régions respectives. En effet, d'une année à l'autre, les comités d'organisation cherchent à créer, à l'intention des délégués, une soirée qui aura un caractère unique et au cours de laquelle défileront les talents originaux de leur coin de pays.

Cette année, le comité du congrès vous invite à apprécier le travail unique de l'Ensemble Anonymous dans sa présentation musicale d'«El Siglo de Oro». Sur une musique médiévale, les interprétations musicales et vocales du groupe vous transporteront dans l'Espagne du 16^e siècle, à l'aube des Temps modernes, évoquant la cour des rois catholiques, la découverte du Nouveau-Monde par Christophe Colomb, sous les yeux de Jeanne la Folle, mère de Charles Quint et reine au destin tragique. L'époque de la romance et de la chevalerie vous sera jouée sur des instruments médiévaux, notamment la flûte, la viole, le luth, le saxophone et les percussions, et chantée en espagnol, en latin et en français.

Vous ferez également la connaissance d'un autre groupe québécois en pleine croissance, «Le Cirque du Tonnerre», aux invraisemblables et fascinantes arabesques dans une vaporeuse et mystérieuse ambiance et aux jeux kaléidoscopiques de perruques et de costumes.

Le Cirque du Tonnerre est une fantaisie théâtrale créée dans la tradition québécoise qui mise sur la sensation forte et rallie dans une ambiance de mystère les arts de l'acrobatie, du théâtre et de la comédie qu'on retrouve sous la grande tente, sans cependant les animaux. Il a été créé à la suite du succès retentissant qu'a connu le Cirque du Soleil, d'où provient d'ailleurs environ la moitié de ses artistes qui sont aussi en très grande majorité Québécois.

Le Cirque du Tonnerre s'est attiré des critiques dithyrambiques depuis sa première au mois de mai 1990 à La Ronde, à Montréal. Depuis, il a joué à Blainville, au Festival international d'été de Québec, au populaire centre de villégiature de Saint-Sauveur, dans les Laurentides, au Canada's Wonderland, à Toronto, et à Sherbrooke (Québec). Le Cirque du Tonnerre est formé d'artistes professionnels fort appréciés et soutenus d'une solide équipe technique. Ce sont de grands clowns qui ont donné la vie au cirque et le Cirque du Tonnerre ne fait pas exception à la règle avec Chocolat, Giorgio, Les Voilà et les amis du cirque, Gérard et Jeannette, qui lui donnent son caractère unique et des plus amusants.

La magie du Cirque du Tonnerre se révèle grâce au caractère créateur de la production qui tisse ensemble des talents aussi divers que variés. C'est un cirque spectaculaire qui marie théâtre et comédie et qui diffère entièrement du cirque traditionnel. Veuillez prendre note que le nombre de places pour la cérémonie d'ouverture est limité. Seuls les 1 800 premiers délégués qui réserveront leurs billets se garantiront une place.

Le lundi matin, les délégués seront invités à participer au Kilomètre du rire annuel qui se déroulera, cette année, sur les plaines d'Abraham. Le défi est lancé à tous les dentistes du Canada et on verra bien quelle région y enverra le plus grand nombre de participants!

Lundi soir, vous êtes invités à une grande soirée de gala qui aura, cette année, pour thème «Charme et Chapeau. Donc, n'oubliez pas de coiffer votre chapeau favori et préparez-vous à passer une soirée de danse au son de la musique de Roland Martel et de son orchestre. La soirée commencera par le cocktail entre 19 h et 20 h, puis le dîner sera servi à 20 h et l'Ensemble Vermeer fera les frais de la musique. Réservez vos billets au moment de la pré-inscription.

Mardi soir, nous espérons vous retrouver à la «Soirée tropicale» qui se déroulera au Hilton Québec. On ne servira pas de repas, mais il y aura danse au son de la musique de Marco Nolasco et de Son del Pacifico et Tuxedo! Réservez dès maintenant, pendant qu'il est encore temps, et préparez-vous à vous amuser pleinement en août à Québec!

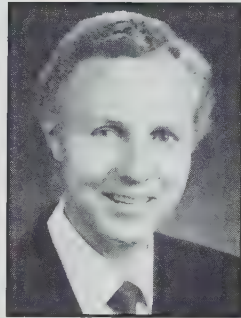
Michel Jahjah
Président des congrès de l'ADC

LE CONGRÈS DE L'ADC - QUÉBEC 1991

APERÇU PRÉLIMINAIRE DU PRÉ-CONGRÈS - SÉANCE RÉSERVÉE

TRADUCTION
SIMULTANÉE

GORDON J. CHRISTENSEN, DDS,
MSD, PhD
Provo, Utah



LE SAMEDI, 24 AOÛT

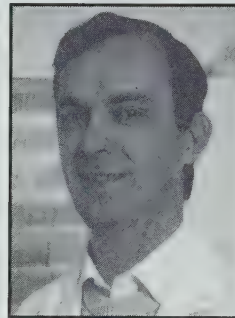
“Nouvelles perspectives en dentisterie - 1991”

Ce programme a pour objet d'informer les dentistes des derniers développements pratiques dans les divers volets de la médecine dentaire. Il traite de problèmes très concrets qu'on rencontre couramment dans la pratique. En voici les principaux sujets:

- restaurations des dents postérieures - incrustations en matériaux esthétiques et composites de classe 2 VS amalgames et obturations en or;
- progrès en matière de prothèses fixes - meilleures façons de préparer la dent et comparaison des nouveaux ciments;
- adhérence à la dentine - nouveau regard sur les produits courants dont on loue l'adhérence à la dentine et sur les produits de liaison de l'amalgame à la structure de la dent;
- bases et fonds protecteurs - comparaison entre les nombreux nouveaux types de bases, y compris le traditionnel ionomère de verre, la résine et l'ionomère de verre;
- prévention efficace et pratique de la contamination;
- la controverse au sujet de l'amalgame;
- plusieurs nouveaux produits, appareils ou procédés évalués récemment par Clinical Research Associates.

À propos du conférencier:

Le Dr Christensen est fondateur et conseiller principal de Clinical Research Associates (CRA), société de recherche sur les matériaux dentaires, les méthodes, les appareils et les nouvelles notions en médecine dentaire. Il a aussi fondé en 1981 un cours clinique dont il est directeur. Il exerce actuellement en pratique privé dans l'Utah, fait de l'enseignement supérieur à plusieurs écoles dentaires, notamment à l'université Brigham Young où il est professeur adjoint et à l'Université de l'Utah où il est chargé de travaux pratiques.



TORSTEN JEMT, DDS, PhD
Gothenburg (Suède)

LE SAMEDI, 24 AOÛT ET LE DIMANCHE, 25 AOÛT

COURS À PARTICIPATION

“Notions prosthodontiques de base en implantologie”

Ce cours a pour objet de renseigner les prosthodontistes et les généralistes sur les procédés prosthétiques relatifs au système Branemark.

Le conférencier traitera des points suivants:

- * Introduction et revue des problèmes cliniques et physiologiques associés à l'édentation totale ou partielle;
- * Présentation des traitements conventionnels et observations sur les autres systèmes d'implants;
- * Le fondement scientifique du système Branemark, ses aspects biologiques, bio-mécaniques et techniques;
- * Aperçu des protocoles chirurgicaux et présentation des aspects principaux de la chirurgie qui ont une incidence sur la réadaptation;
- * Les soins prosthétiques: planification, choix du patient, indications et contre-indications;
- * Présentation en détail, sur le plan clinique et technique, de divers procédés prosthétiques et emploi de divers matériaux;
- * Exercices pratiques, comprenant la présentation des éléments, des instruments et des diverses étapes du traitement clinique;
- * Présentation de patients aux diverses étapes du traitement et une fois le traitement terminé;
- * Possibilités de complication et soins appropriés;
- * Surveillance du patient et programme d'entretien, comprenant le recours à la radiographie et à l'informatique pour assurer le suivi à long terme.

À propos du conférencier:

Le docteur Jemt a obtenu son DDS en 1975 et s'est spécialisé en prosthodontie en 1982. Il présente sa thèse de PhD en 1984, à l'Université de Gothenburg (Suède). En 1988, il devient professeur agrégé en prosthodontie. Depuis 1986, il est directeur associé de la clinique Branemark. Le Dr Jemt a donné plus d'une centaine de conférences à des auditoires formés de professionnels et a publié une trentaine d'ouvrages scientifiques. Il poursuit des recherches sur le remplacement d'une dent unique.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

APERÇU PRÉLIMINAIRE DU PRÉ-CONGRÈS - SÉANCE RÉSERVÉE

IMTIAZ MANJI, BSc
Vancouver (C-B)



ET



TOM SNYDER, DMD, MBA
Cedar Knolls, New Jersey

LE SAMEDI, 24 AOÛT

LE DIMANCHE, 25 AOÛT

COURS À PARTICIPATION

“L’abc de la technologie de pointe”

Au début de la séance, chaque participant se trouve devant un ordinateur en pièces. Utilisant un langage simple et direct, M. Manji et Dr Snyder aide alors chacun et chacune à monter l'appareil.

Puis, une fois les ordinateurs montés et branchés, ils passent en revue les principaux programmes informatisés et les logiciels dont on se sert chez les dentistes.

Sujets: les coûts de la bureautique, les principaux logiciels, comparaisons entre les progiciels, moyens d'évaluer la compétence du vendeur en informatique, liste de vérification, entretien du matériel et du logiciel, conversion des données et application, mise à jour sur les nouveaux progiciels concernant le soin des patients.

“Bien gérer pour réussir financièrement”

Ce séminaire vous présentera les étapes à suivre pour gérer efficacement la croissance de votre cabinet dentaire et accéder personnellement à l'indépendance financière. Seule une stratégie de gestion financière et de planification de la pratique permettra de débloquer les richesses de la pratique et en faire des outils de croissance et de réussite.

Les participants découvriront les indicateurs de bonne santé de la pratique dentaire et apprendront comment réunir et analyser les données pour mesurer l'état de la pratique ainsi que comment se servir d'outils de planification tels que les tableaux et les modèles financiers pour faciliter la prise de décision. L'analyse mensuelle de la pratique en fera découvrir les possibilités de réussite en ce qui a trait au plan de retraite, à la rentabilité du cabinet dentaire, à sa valeur, au maintien du personnel, à l'achalandage et à la productivité. Par ailleurs, on vous indiquera des méthodes pour faire participer le personnel à la réussite du cabinet dentaire, soit par la participation aux profits, par une structure de boni et d'avantages marginaux.

À propos des conférenciers:

Président d'ExperDent Consultants Inc et fondateur d'Exan Technologies Inc, M Manji voyage beaucoup pour présenter aux dentistes du pays sa façon unique d'adapter les dernières applications de la technologie à la gestion du cabinet dentaire. Dans une rubrique trimestrielle intitulée “Practicing for Success”, il explique comment son approche très terre-à-terre de la technologie a aidé nombre de dentistes à augmenter considérablement leur productivité et leur stabilité financière.

Le Dr Thomas Snyder est président de Healthcare Financial Network Ltd., société affiliée à The America Group Ltd., de Radnor, Pennsylvanie. Diplômé de l'école de médecine dentaire de l'Université de la Pennsylvanie et de l'école d'administration Wharton, le Dr Snyder était auparavant associé à la firme Sarantos & Company Inc., dont il était le directeur des services professionnels.

Quebec 1991

Summary of Lectures and Events

Dentists ■ Hygienists ■ Assistants ■ Administrative Staff ■ Spouses

❖ Simultaneous Translation
❖ Traduction simultanée

Hilton
Porte du Palais

Hilton
Porte Kent

Hilton
Porte St-Louis

Hilton
Beauport

Hilton
Beaumont-Belair

Saturday / Samedi August 24 août 8:30 - 12:00 13:30 - 16:00	DÉJEUNER / LUNCH 12:30 - 13:30	Gordon Christensen ❖ Restorative Dentistry		Imtiaz Manji Tom Snyder Computers (Hands-on)	Torsten Jemt Implants (Theory)
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Sunday / Dimanche August 25 août 8:30 - 12:00 13:30 - 16:00	DÉJEUNER / LUNCH 12:30 - 13:30	Imtiaz Manji Tom Snyder Practice Management	Torsten Jemt Implants (Hands-on) 8:30 - 12:00		
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Monday / Lundi August 26 août 8:30 - 11:00	Dennis Smith ❖ Biomaterials and Biocompatibility	Léo Pelletier La classification des maladies parodontales	GRIEVE MEMORIAL LECTURE Edwin Yen Orthodontic Advances - Biological Solutions		John Young Dental Office Lighting and Design
Monday / Lundi August 26 août 13:30 - 16:00	Robert Samp ❖ Stress: Living In, With and In Spite of It.	Hubert Gaucher L'avenir est aujourd'hui - le CAD/CAM en médecine dentaire	Philip Molloy Endodontic First Aid		John Young Ergonomics and Asepsis

Tuesday / Mardi August 27 août AM 10:00 - 12:00	Jeffrey Simpson Canada at the Crossroads 8:30 - 9:30	Gilles Gauthier Les prothèses partielles amovibles	Philip Molloy Exploring Periapical Surgical Approaches	Université Laval MISE À JOUR EN RECHERCHE DENTAIRE	Mark Sarner The Canadian Dental Consumer in the 90's
	Sebastian Ciano ❖ Periochemotherapeutics 10:00 - 12:00				
Tuesday / Mardi August 27 août 14:00 - 16:30	Sol Silverman ❖ Update on AIDS, HIV infections and Dentistry	Salam Sakkal Endodontie	Charles Blair Controlling Practice Overhead		Peter Guevera Light Activated Materials Systems

Wednesday / Mercredi August 28 août 8:30 - 11:00		Sol Silverman Oral Cancer and Premalignant Lesions	Charles Blair Dental Practice Transitions		
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Québec 1991

Sommaire des conférences et activités

Dentistes • Hygiénistes • Assistant(e)s • Personnel Administratif • Conjoint(e)s

EXHIBITS / EXPOSITIONS

9:00 - 18:00

Monday, August 26 • Lundi 26 août
Tuesday, August 27 • Mardi 27 août

*Quebec City Convention Centre
Centre des Congrès de Québec*

OPENING CEREMONY • CÉRÉMONIE D'OUVERTURE

Sunday, August 25 • Dimanche 25 août
Grand Théâtre, Québec

PRESIDENT'S GALA — "CHARME ET CHAPEAU" — GALA DU PRÉSIDENT

Monday, August 26 • Lundi 26 août
Quebec Hilton Ballroom • Salle de bal Québec Hilton

MEET & GREET "TROPICAL NIGHT" • SOIRÉE DES RETROUVAILLES "SOIRÉE TROPICALE"

Tuesday, August 27 • Mardi 27 août
Quebec Hilton Ballroom • Salle de bal Québec Hilton

Hilton
Portneuf-Ste-Foy

Hilton
Montmorency-Courville

Hôtel des Gouverneurs
Duquesne

Hôtel des Gouverneurs
Jonquière

Hôtel des Gouverneurs
Lauzon

Monday / Lundi
August 26 août

8:30 - 11:00

Kenneth Shay
Guidelines for Restoring
the Aged Dentition

Domenic Morielli
Le généraliste
et les dents incluses

Anita Jupp
Practice
Management

Edward Kisling
Credit and
Collection

Monday / Lundi
August 26 août

13:30 - 16:00

Kenneth Shay
Dental Management
of the
Frail Older Patient

Gérard Bouger
Le marketing
au service du
cabinet dentaire

**Olga Skica
Lorre Wiseman**
Periodontics
into the 90's

Barbara Steinberg
Medical Considerations
for the
Female Patient

Tuesday / Mardi
August 27 août

10:00 - 12:00

Barbara Steinberg
Team Approach
to Treating the
Dental Patient
with Medical Problems

Joanne LaMantia
Computers in the
Dental Practice

Dennis Smith
Update on Bondings
and Cements

Robert Samp
Survival Strategies
for Today's People

Tuesday / Mardi
August 27 août

14:00 - 16:00

Sebastian Ciano
Dento-therapeutics

Sylvie Morin
Dentisterie
Opératoire

**TABLE CLINICS /
ENTRETIENS CLINIQUES**

Marilyn Ciano
Leadership &
Volunteerism

Wednesday / Mercredi
August 28 août

8:30 - 11:00

**Hélène Lemay
Anne Charbonneau**
Anesthésie
locale et
électrique

Peter Guevera
Complete and
Partial Dentures

LE CONGRÈS DE L'ADC - QUÉBEC 1991

APERÇU DU CONGRÈS

L'École de médecine dentaire de l'université Laval

Mardi, le 27 août - AM

Mise à Jour en Recherche Dentaire

Sonia Moreau, DMD
Louise Alain, BSc
Alain Bernard, MD
Réjean Paradis, MD

Vers la distinction entre la colonisation bénigne et l'infection candidale

Claire Leveillé, MSc
Brigitte Carré, BSc
Marie-Claire Chevrier, MSc
Noëlla Deslauriers, PhD

Groupe de Recherche en Écologie Buccale (GREB)

Prévalence des symptômes associés aux désordres temporo-mandibulaires dans la population québécoise

Jean-Paul Goulet, DDS, MSD
Gilles Lavigne, DDS, MSc
James P. Lund, BDS, PhD

Utilisation potentielle du Xylitol en prévention

Luc Trahan, PhD
Groupe de Recherche en Écologie Buccale (GREB)

Immunobiologie de porphyromonas gingivalis: du laboratoire à la clinique

Christian Mouton, DSO
Groupe de Recherche en Écologie Buccale (GREB)

Évaluation et commentaires sur les nouveautés en parodontie

René-Guy Landry, DMD, MSc, MRCD (C)

Nouveaux conférenciers qui viennent de confirmer leur présence

Lundi, 26 août
8h30 - 11h00

Edward Kisling
Vancouver, C-B
"Crédit et perception"

Ce séminaire s'adresse au personnel qui doit ouvrir, suivre et percevoir les comptes. Il traite de l'ouverture des comptes, de la facturation, de la communication par téléphone, du comptoir, des objectifs, de la psychologie de la perception, des chèques sans provisions, du recouvrement des comptes, des autres modes de financement et de bien d'autres sujets, y compris la perception des comptes des "amis" du dentiste.

Lundi, 26 août
13h30 - 16h00

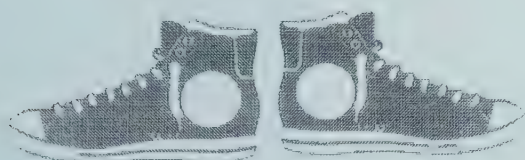
Hubert Gaucher, DDS, MScD
Québec, Québec
"L'avenir est aujourd'hui - Le CAD/CAM en médecine dentaire"
* présentation en Français

L'avènement de Cad-Cam en dentisterie nous transporte déjà dans l'avenir. En effet, on peut maintenant effectuer des restaurations en céramique ou remplacer des inlays et des cuspidés à l'aide de l'ordinateur pour en dessiner la forme et d'un micro-moulinet de production. On traitera de l'importance de bien préparer la cavité, d'utiliser les bons agents de liaison et de veiller à la finition et au polissage. On démontrera, étape par étape, le processus de l'imagerie et du dessin de l'inlay ainsi que l'utilisation du moulinet. On se sert ainsi de l'informatique depuis cinq ans en Europe et il en a été question au dernier symposium international de Zurich. Ce fascinant sujet tombe vraiment à propos.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

LE KILOMÈTRE DU RIRE

Le défi est lancé:
quelle région
enverra le plus de participants?



Lundi 26 août

Départ à 7 heures

Ralliement dès 6h30 au terrain de
stationnement du Hilton pour se rendre
à pieds aux plaines d'Abraham.

ENTRETIENS CLINIQUES

Les entretiens cliniques sont
des démonstrations ou
présentations d'une durée de dix
minutes, utilisant des aides visuels
et répétés au cours d'une période
de deux heures et demie.

**Si vous êtes intéressé(e)
à faire une présentation,
veuillez vous adresser à:**

ENTRETIENS CLINIQUES
Congrès de l'ADC
1815 promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6

MARDI 27 AOÛT
8h30 - 9h30 AM

TRADUCTION
SIMULTANÉE

JEFFREY SIMPSON

"LE CANADA À LA CROISÉE DES CHEMINS"



L'édition de 1991 de la **Conférence Murray McDonald**, parrainée par le Fonds canadien pour l'enseignement dentaire (FCED), mettra en vedette M. Jeffrey Simpson.

Avec les années, bon nombre de Canadiens ont pris l'habitude d'ouvrir **The Globe and Mail** à la chronique de Jeffrey Simpson. Chroniqueur politique national pour ce journal et **Le Devoir**, Jeffrey Simpson participe tous les dimanches soirs à l'émission **Sunday Report** de la chaîne anglaise de Radio-Canada et collabore régulièrement à plusieurs magazines comme **Saturday Night**, **The New York Times** et le **Bulletin of Atomic Scientists**. Il est également le lauréat du prix national-magazine pour ses articles politiques ainsi que du prix du Gouverneur général de littérature non romanesque pour son livre *Discipline of Power*. Son dernier livre, *The Spoils of Power*, est un best-seller.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

Le congrès de l'ADC et
Healthco/Dépôt Dentaire (Canada) Limitée présentent...

La cérémonie d'ouverture 1991

en vedette
'Le Cirque du Tonnerre'

Dimanche 25 août
de 17h00 à 19h00
au Grand Théâtre de Québec



Programme:

- * Mots de bienvenue
- * L'Ensemble Anonymus Inc. présente 'El Siglo de Oro'
- * 'Le Cirque de Tonnerre'
- * et d'autres....

Comme le nombre de places est limité, réservez tôt, dès la pré-inscription.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

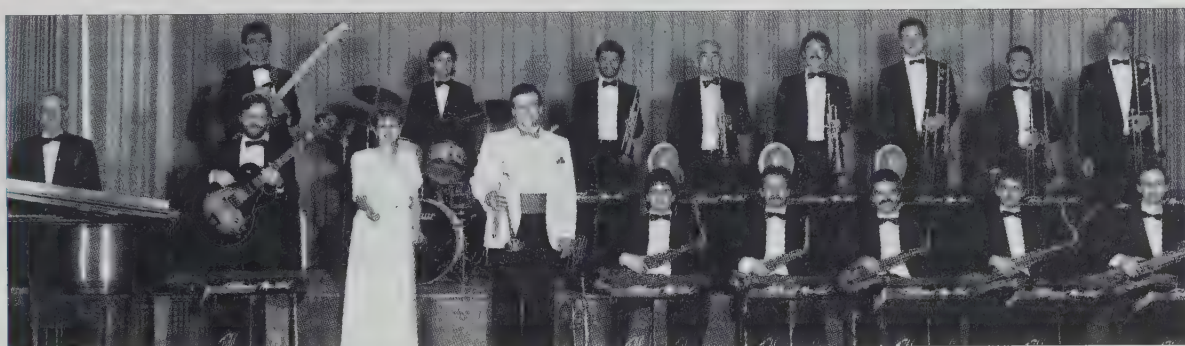
PROGRAMME SOCIAL

"SOIRÉE CHARME ET CHAPEAU"

Lundi 26 août

Cocktail 19h00-20h00 Dîner dansant 20h00 - 01h00

La soirée du Président, dîner et danse (tenue de gala suggéré) met en vedette l'orchestre Roland Martel et la musique de l'Ensemble Vermeer.



Réservez vos billets en remplissant la formule de pré-inscription.

*** Des prix de présence seront accordés aux chapeaux les plus uniques.**

"SOIRÉE TROPICALE"

Mardi 27 août

20h00 - 01h00

Voguez vers une "île paradisiaque" des tropiques lors de la soirée de la détente du congrès 1991 de l'ADC

En vedette Marco Nolasco et le "Son del Pacifico" qui se spécialisent dans les danses rythmées - des tropiques, d'Amérique latine et des Antilles. Une excellente occasion de pratiquer la 'lambada', la 'cumbia', la 'samba' et le 'merengue'!

Une soirée d'amusement et de gaieté pour tous les membres de l'équipe dentaire. Réservez vos billets gratuits en remplissant la formule de pré-inscription.

Durant la soirée le gagnant du prix Club Med pour 2, pour la Guadeloupe ou Caravelle sera annoncé. Nos remerciements au Club Med pour nous avoir offert ce fabuleux prix.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

Visitez l'exposition et gagnez ...de bien des façons !

Plus de 180 kiosques des fournisseurs dentaires d'un bout à l'autre du continent et un personnel prêt à VOUS servir et à répondre à vos questions.



Le prix n'est pas nécessairement tel qu'illustré.

Pour participer au tirage d'une **Chrysler Daytona ES**, visitez l'exposition et déposez votre billet personnel. Ce billet sera envoyé en même temps que leur insigne et leurs billets à tous ceux et celles qui se seront pré-inscrits. Merci à **AURUM CERAMIC/CLASSIC DENTAL LABORATORIES** qui fournissent le grand prix de présence à l'exposition de cette année.

**Vous êtes invités à un déjeuner
de muffins et café, le mardi 27 août
à la salle d'exposition à partir de 9h a.m.
*Les conférences débuteront cette journée là à 10h.***

Une gracieuseté de ASH TEMPLE/SERVIDENT

**Également des prix de grande valeur seront tirés
aux délégués qui visiteront la salle de l'exposition 1991.**

LE CONGRÈS DE L'ADC - QUÉBEC 1991

PROGRAMME DES CONJOINT(E)S

Lundi 26 août

Tour à pied du Vieux Québec
(pluie ou beau temps)
Initiation à la dégustation de vins
Déjeuner dans le Vieux Québec

Mardi 27 août

Croisière en bateau sur le St-Laurent
Initiation à la dégustation de vins
Déjeuner

Plus trois conférences

Lundi 26 août
(13h30 - 16h00)

Robert Samp, MD
Vivre dans le stress, avec lui et malgré lui (traduction simultanée)

Mardi 27 août
(10h00 - 12h00)

Robert Samp, MD
Techniques de survie dans le monde d'aujourd'hui

Mardi 27 août
(14h:00 - 16h30)

Marilyn Ciano, BA, MA
Leadership et bénévolat

PROGRAMME DES ENFANTS

**Un programme de deux jours pour les enfants de 5 ans et plus,
coordonné par YM-YWCA Québec**

Lundi: * Une journée entière au Parc Zoologique (si le temps le permet)
(en cas de pluie les enfants assisteront à une présentation "spéciale" à
l'intérieur, et à une visite au centre d'initiation à l'histoire de la Ville de
Québec - situé dans les caves voûtées du deuxième palais de l'Intendant
(1713) l'après-midi);

Mardi : * Le matin, une excursion au Musée de la civilisation;
* L'après-midi, jeux et activités au "Y-Québec". Pensez à amener vos
espadrilles et maillot de bain !

*Enregistrez vos enfants aujourd'hui - supervision bilingue, tous les
jours collations et déjeuner inclus !*



LE CONGRÈS DE L'ADC - QUÉBEC 1991

Gagnez une "fin de semaine pour deux"
au Hilton Québec ou à l'Hôtel des Gouverneurs

Pour participer au concours, inscrivez-vous tôt au congrès et faites vos réservations à l'un des quatre hôtels prévus par le truchement du Service des congrès de l'ADC/

Le Service des congrès offre un service d'hébergement aux délégués pour mieux vous servir. Vous ne pouvez pas réserver directement aux hôtels retenus pour le congrès au prix indiqué sur le formulaire de réservation.

C'est donc avec plaisir que nous nous occuperons de votre "formulaire de réservation d'hôtel" et que nous ferons vos réservations, celles de votre personnel ou de votre équipe dentaire, aux meilleurs hôtels de Québec : le Hilton, l'Hôtel des Gouverneurs, le Loews Le Concorde ou le Château Frontenac.

Les cours se donneront au Hilton et à l'Hôtel des Gouverneurs. L'exposition et l'inscription seront logées au Centre des congrès de Québec, auquel le Hilton et l'Hôtel des Gouverneurs sont reliés. Le Loews Le Concorde et le Château Frontenac sont situés à une quinzaine de minutes de marche du Centre des congrès.



Hilton Québec, Québec



Hôtel des Gouverneurs, Québec

LE CONGRÈS DE L'ADC - QUÉBEC 1991

du 24 au 28 août



QUÉBEC CONVENTION CENTER

① QUÉBEC HILTON

② HÔTEL DES GOUVERNEURS

③ LOEWS LE CONCORDE

④ CHÂTEAU FRONTENAC

CDA CONVENTION / CONGRÈS DE L'ADC - QUÉBEC 1991

EXHIBITORS LIST - LISTE DES EXPOSANTS

3M Canada Inc.

A

A-Dec Inc.
Abel Computers Ltd.
Amadent/American Dental & Dental Corp.
American Dental Association
American Express Canada
Anchor Implants Systems Inc.
Ash Temple Ltd.
Astra Pharma Inc.
Aurum Ceramic Dental Laboratories Ltd.
Aurum Crest Dental Laboratories Ltd.
Aurum/Classic Dental Labs. Ltd.

B

Bausch & Lomb Canada Inc.
Beecham Canada Inc.
Belmont Takara Company Canada Ltd.
Block Drug Company (Canada) Ltd.
Brasseler Canada Inc.
Buffalo/Bolton Dental Mfg. Inc.
Burroughs Wellcome Inc.
Business & Message Center
Busse Dental Supplies
Butler, J.O., Company

C

C & B Dental Laboratories Inc.
Calcitek Inc.
Canada Microsurgical Ltd.
Canadian Dental Association
Canadian Dental Supply
Caulk, L.D., Co. of Canada - Ash/Detrey
CDA Leasing/Location l'ADC
CDSPI
Cerum Dental Supplies Ltd.
Cerum Ortho Organizers
Church & Dwight Ltd.
Classic Dental Laboratories Ltd.

COE Laboratories, Inc.
Colgate Palmolive Canada
Coltene/Whaledent
Compagnie Dentaire Américaine
Concept Dental
Core-Vent Canada

D

Degussa Canada Ltd.
Den-Mat Corporation
Den-Tal-Ez Inc./Star Dental/Custom Vacuum
Dentechica
Dentsply Canada Ltd.
Designs for Vision Inc.
Dickson, R., Enterprises
Direct Dental Funding Ltd.
Domtrak Systems Ltd.
Doug Siebert Company

E

Ellman International Mfg. Inc.
Encyclopaedia Britannica
Exan Consolidated Transactions Inc.

F

First City Trust
Focus Multi-Systems Inc.

G

G.C. International
Gel-Kam Corporation
Gilbert's Dental Supply Inc.

H

H-Wave Canada
Healthco (Canada) Ltd.
Healthgroup Financial
Henry Schein Inc.
Hoechst Canada Inc.

CDA CONVENTION / CONGRÈS DE L'ADC - QUÉBEC 1991

EXHIBITORS LIST - LISTE DES EXPOSANTS

Horner, Frank W. Inc.

Hu-Friedy Corporation of Canada

Hygenic Corporation of Canada

I

Ivoclar/Vivadent Canada Inc.

J

Jelenko, J.F., & Co.

Johnson & Johnson Inc. (Dental Division)

K

Kerr Canada

Kilgore International Inc.

Kodak Canada Inc.

Krest Ceramic Laboratory

L

Laboratoire Dentaire Morisset

Le-Han Canada Inc.

Les Systemes Cortex Ltée

M

McNeil Consumer Products Company

MDT Corporation

Medi-Dent Services Inc.

Medidenta International

Medigas Inc.

Midwest Dental Products Corporation

Miles Inc. Dental Products

Modular & Custom Cabinets Ltd.

N

Nobelpharma Canada Inc.

Novocol Pharmaceutical, Inc.

O

Oral-B Laboratories Inc.

Orthorum Canada Inc.

P

Pfizer Canada Inc.

Premier/Espe-Premier Canada Inc.

Pro-Mart Medical & Dental Supplies

Procter & Gamble Inc.

Professional Practice Builders, Inc.

Progrès Plus Inc.

R

Regent Hospital Products Inc.

Rhône-Poulenc Pharma Inc.

Roscoe Canada Enr.

S

Sci-Can (Div. of Lux & Zwingenberger)

Shofu Dental Corporation

Siemens Electric Limited

Space Maintainers Dental Laboratory

Sterling-Winthrop Inc.

Swiss NF Metals Inc.

T

Teledyne Water Pik Canada

Times Mirror Pub. (Mosby Year Book Inc.)

Toronto-Dominion Bank

Trans Canada Dental Ltd.

Tri Hawk International Inc.

Turbine Industries Inc.

U/V

Unident Limited

Upjohn Consumer Products

Van R/Cadco/Clive Craig

W

Warner-Lambert Canada Inc.

Whitehall-Robins Inc.

Williams Dental Co. of Canada

Wright Dental Canada Ltd.

Wrigley Canada Inc.

CONGRÈS ANNUEL 1991 DE L'ASSOCIATION DENTAIRE CANADIENNE

24 - 28 août 1991 ■ Québec

Formulaire de réservation d'hôtel

Veillez cocher la catégorie qui vous concerne:

☐ Dentiste ☐ Hygiéniste ☐ Assistant(e) ☐ Exposant ☐ Personnel administratif ☐ Autre (spécifiez) _____

Nom: _____

Adresse: _____

Ville: _____ Province: _____ Code Postal: _____

Téléphone: (____) (____)
(rés.) (bur.)

Type de chambre:

☐ simple ☐ double ☐ lits jumeaux ☐ Autre (spécifiez) _____

Prière d'indiquer trois hôtels au choix* (en numérotant les boîtes):

- ☐ Québec Hilton (Quartier général de l'ADC) \$ 130.00 simple / double
☐ Hôtel des Gouverneurs (Quartier général de l'ADC) \$ 115.00 simple / double
☐ Loews le Concorde \$ 120.00 simple / double
☐ Château Frontenac \$ 140.00 simple / double

* Les prix n'incluent pas la TPS.

Date d'arrivée: _____ Date de départ: _____

Heure d'arrivée: _____

Pour faire votre réservation, vous devez garantir la première nuit à l'hôtel. Cette garantie s'applique à la première nuit SEULEMENT. Si vous désirez annuler votre réservation, veuillez en prévenir l'ADC au moins trois jours avant la date prévue pour votre arrivée.

☐ MasterCard ☐ American Express ☐ VISA

N° de carte: _____

Date d'expiration: _____

Signature: _____

Veillez faire parvenir le formulaire de réservation à l'adresse suivante:

Congrès de l'ADC
Association dentaire canadienne
1815, promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6

DATE LIMITE pour réserver: le 10 juillet 1991

Un Seul Formulaire Par Personne
Pour plus d'une inscription,
photocopier le formulaire.

CONGRÈS DE L'ASSOCIATION DENTAIRE CANADIENNE

Québec • du 24 au 28 août 1991

FORMULAIRE DE PRÉ-INSCRIPTION

(écrire en lettres MOULÉES)
Le système d'inscription étant informatisé, on ne peut inscrire qu'une seule personne par formulaire et, pour en tirer pleinement avantage, il faut s'inscrire tôt. Nous acceptons donc les inscriptions hâtives jusqu'au 10 juillet 1991, après quoi les formulaires seront renvoyés à l'expéditeur. Il en coûtera 27 \$ en frais d'administration pour s'inscrire sur place (TPS inclus).

Nom _____ Prénom _____ Sexe: M F

Adresse _____ (rue) _____ (ville) _____ (province)

(code postal) _____ Téléphone: () _____ (bureau) _____ (résidence)

No de membre de l'ADC _____ No du permis d'exercer _____

PRÉ-CONGRÈS • les 24 et 25 août • Séances réservées (*en anglais)

SAMEDI 24 AOÛT

**Gordon Christensen, D.D.S., M.S., Ph.D.* - RESTAURATIONS - Conférence

Dentistes \$ 160.00
Personnel \$ 70.00
Imtiaz Manji, B.Sc. et Tom Snyder, D.M.D., M.B.A.* - LES ORDINATEURS -
Cours à participation
Dentistes \$ 250.00
Personnel \$ 250.00

DIMANCHE 25 AOÛT

Imtiaz Manji, B.Sc. et Tom Snyder, D.M.D., M.B.A.* - GESTION DU CABINET DENTAIRE -
Conférence
Dentistes \$ 160.00
Personnel \$ 70.00

Torsten Jemt, D.D.S., Ph.D.* - IMPLANTS - Cours théorique et pratique
• COURS DE DEUX JOURS, SAMEDI ET DIMANCHE •

Dentistes \$ 350.00
* La TPS n'est pas perçue sur les cours pré-congrès. ** service d'interprétation

CONGRÈS • les 26, 27 et 28 août

DENTISTE

Membre de l'ADC \$ Nil
Non-membre, Autres (TPS incluse) \$ 155.00

Inclus: Programmes scientifiques, exposition technique
Si vous voulez profiter de l'occasion pour devenir membre de l'ADC, appelez le service des congrès au (613) 523-1770.

ÉTUDIANT(E)

Membre de l'ACHD (TPS incluse) \$ 70.00
Non-membre (TPS incluse) \$ 102.00
Inclus: Programmes scientifiques, exposition technique

ASSISTANT(E) DENTAIRE

Membre de l'ACHD (TPS incluse) \$ 70.00
Non-membre (TPS incluse) \$ 102.00
Inclus: Programmes scientifiques, exposition technique

☐ **ÉTUDIANT(E) ADMINISTRATIF** (TPS incluse) \$ 70.00
Inclus: Programmes scientifiques, exposition technique

☐ **TECHNICIEN(NE)** (TPS incluse) \$ 70.00
Inclus: Programmes scientifiques, exposition technique

☐ **ÉTUDIANT(E)** ☐ Dentiste ☐ Hygiéniste ☐ Assistant(e) Nil
Inclus: Programmes scientifiques, exposition technique

☐ **CONGRÉSSISTE** (TPS incluse) \$ 102.00
Inclus: Programmes scientifiques, exposition technique et activités des conjoints

☐ **ENFANT** (TPS incluse) \$ 65.00
Ouvert aux enfants de 5 ans et plus. Âge de l'enfant: _____
Inclus: Accès au congrès et aux activités des enfants

No de la TPS: R016845209

☐ **ACTIVITÉS SOCIÉTARIQUES**
Inclus: Les programmes d'ouverture

☐ Oui ☐ Non \$ Nil
Lundi - « Soirée Charme et Chapeau » - gala du président
(par personne) (TPS incluse) \$ 60.00

Mardi - Soirée de rencontre - Soirée Tropicale
☐ Oui ☐ Non \$ Nil
Lundi (matin) (TPS incluse) \$ 16.00

TOTAL \$

Les frais d'inscription sont payés par _____

☐ Veuillez porter à mon compte de carte de crédit: ☐ MasterCard ☐ VISA ☐ AmEx
No de carte: _____ Date d'expiration: _____

Signature: _____

☐ Je préfère acquitter le tout par chèque à l'ordre de l'Association dentaire canadienne.
Prière de ne pas faire de chèques postdatés.

Adresser le formulaire et le paiement à

Congrès 1991 de l'ADC
1815, promenade Alta Vista
Ottawa (Ontario)
K1G 3Y6

Les dentistes, les assistants, les hygiénistes, le personnel administratif et les techniciens qui s'inscrivent avant le 10 juillet 1991 participent automatiquement au tirage de deux billets d'avion pour toute destination d'Air Canada en Europe ou en Amérique du Nord!

Congrès annuel 1991 de l'Association dentaire canadienne
24 - 28 AOÛT
QUÉBEC, QUÉBEC

Nous avons hâte de vous inscrire, vous, ainsi que votre famille, vos collègues, votre équipe et vos amis ...!

Pré-inscription pour le congrès

- Inscrivez-vous tôt. Si vous le faites avant le **10 juillet 1991**, vous serez éligible au tirage d'*Air Canada*, de deux billets d'avion aller-retour, en classe économique pour une de ses destinations (sauf Bombay).
- Les conférences du pré-congrès sont réservées aux premiers arrivés, premiers servis.
- Utilisez un formulaire par personne.
- Les changements et les additions pourront être faits ultérieurement en téléphonant au Congrès de l'ADC au 1-800-267- 6364 (est) ou 1-800-267-6354 (ouest et code 709).

Réservation d'hôtel

- Si vous réservez avant la date limite vous serez éligible au tirage d'un des deux week-ends pour deux offerts par Hilton Québec et l'Hôtel des Gouverneurs (Hauteville).
- L'ADC s'occupe de la réservation d'hôtel. Les hôtels n'acceptent pas les réservations faites directement par les participants.
- Pour réserver, complétez la formule de réservation d'hôtel incluse et envoyez-la avec votre formule de pré-inscription à l'ADC.
- Pour tout changement de réservation, veuillez vous adresser à l'ADC.
- Les conférences du congrès seront tenues au **Hilton-Québec et l'Hôtel des Gouverneurs**. - ces deux hôtels sont reliés directement au Centre des Congrès, site de l'exposition ainsi que de l'inscription sur place. Les deux autres hôtels Le **Loews Le Concorde** et le **Château Frontenac** sont à quinze minutes de marche.

Reservez vos sièges d'avion



Air Canada est le transporteur officiel du Congrès annuel de l'Association dentaire canadienne à Québec. L'ADC a obtenu un accord d'*Air Canada* pour offrir aux congressistes des rabais intéressants sur le prix des sièges d'avion. Pour profiter de ces rabais, veuillez appeler ou demandez à votre agent de voyages d'appeler la Centrale de Congrès d'*Air Canada* pour retenir vos sièges. On peut atteindre la Centrale de Congrès en composant le **1-800-361-7585** tous les jours de la semaine de **8h30 à 20h00 pm HNE/HEE**. Veuillez vous identifier comme un congressiste de l'ADC (Event # CV 910840) et les préposés d'*Air Canada* feront le reste. On vous confirmera aussitôt les sièges disponibles au plus bas prix possible. Plus vous réserverez tôt, plus vous aurez de chance d'obtenir des rabais intéressants.

LE CONGRÈS DE L'ADC - QUÉBEC 1991

du 24 au 28 AOÛT

Un guide des restaurants à Québec - "Joie de Vivre"

Bonjour! Pour les Québécois, "Joie de vivre" est synonyme de "Bonne cuisine". Il n'est donc pas surprenant que la ville de Québec compte le plus grand nombre de restaurants par habitant en Amérique du Nord. Les restaurants mentionnés dans ce guide sont des exemples du nombre de restaurants à choisir. C'est sûr qu'ils partagent tous, dans la région, un désir commun de vous servir avec leur hospitalité légendaire.

MODIQUE - FAMILIALE

LE PICOTIN

4, rue du Petit-Champlain
(418) 692-1862

Petit bistro français logé dans une maison vieille de 275 ans, au cœur du district Petit-Champlain. Réputé pour son excellent rapport qualité prix.

LE PARIS GOURMET

73, rue Saint-Louis
(418) 694-0030

Dans le Vieux Québec, un coin de Paris où on peut déguster la cuisine nouvelle et classique.

LA VIEILLE MAISON DU SPAGHETTI

40, rue Marché-Champlain (Place Royale)
(418) 694-9144

Atmosphère spéciale. Vaste terrasse au pied du Château Frontenac, en bordure du fleuve.

CAFÉ CYRILLE

31, boul. Saint-Cyrille Ouest
(418) 529-8457

La belle au bleu ou la paysanne? Cuites sur feu de bois, régulières ou soufflées, onze pizzas entre lesquelles choisir les dîners d'affaires.

BUFFET DE L'ANTIQUAIRE

95, rue Saint-Paul
(418) 692-2661

Sur la rue des Antiquaires, un restaurant à prix populaire. Menu varié.

LE D'ORSAY (RESTAURANT - PUB)

65, rue Buade (Vieux Québec)
(418) 694-1582

En vedette: la meilleure côte de boeuf du continent et...un riche décor de marbre et d'acajou.

MODÉRÉE - COÛTEUSE

CAFÉ DE LA PAIX

44, rue des Jardins (Vieux Québec)
(418) 692-1430

Replié dans les rues sinueuses au cœur du Vieux Québec, le Café offre un mélange de cuisine française raffinée dans une ambiance d'auberge...la façon superbe de prendre plaisir à déguster de grands mets.

CICCIO CAFÉ

875, rue Claire Fontaine
(418) 525-6161

Décor somptueux, cuisine raffinée. Service de navette gratuite de votre hôtel.

GAMBRINUS

15, rue du Fort
(418) 692-5144

Gambrinus, un endroit favori des québécois, où l'on trouve la chaleur de Québec. Cuisine d'inspiration latine et européenne.

LA CARAVELLE

68 1/2, rue Saint-Louis
(418) 694-9022

Cuisine française et espagnole. Ambiance rehaussée par le chant des ménestrels.

LA CRÉMAILLÈRE

21, rue Saint-Stanislas
(418) 692-2216

Cuisine européenne à son meilleur. L'endroit où l'on est jamais déçu.

TABLE DU SERGE BRUYÈRE (À LA)

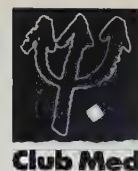
1200, rue Saint-Jean
(418) 694-0618

Une table où l'on vous octroie la soirée entière - il n'y a qu'un service - pour vous faire découvrir la cuisine de Serge Bruyère. Nouvelle...toujours nouvelle.



L'Association dentaire canadienne et le Club Med - Nouvelle association, nouveaux privilèges pour les membres de l'ADC

Chers membres de l'ADC



C'est avec fierté que le Club Med s'est associé à l'une des prestigieuses associations professionnelles du Canada et il nous fait plaisir de vous faire part aujourd'hui d'un nouvel avantage que nous offrons exclusivement aux membres de l'ADC, leur donnant accès à des privilèges particuliers dans une des plus grandes écoles sportives du monde, le Club Med.

En tant que membres de l'ADC, vous pouvez maintenant profiter des merveilleux sites du Club Med le long de plages magnifiques ou au pied de montagnes majestueuses. Le Club met à votre disposition des villages entiers de villégiature, avec villas, qui offrent un cadre

parfait pour vous récréer, développer des amitiés et vous détendre.

Si vous aimez la liberté, vous serez servis à souhait au Club Med. Vous y trouverez toute la compagnie que vous désirez comme tout le calme et la quiétude pour prendre le temps de vous détendre. Vous êtes ici chez vous et nous insistons sur la qualité du service pour vous épargner tout souci et rendre votre séjour des plus agréables.

Il nous tarde d'accueillir les dentistes canadiens dans nos clubs d'Amérique-du-Nord pour leur offrir des 'vacances de rêve' qui répondront à leurs besoins.

Sincèrement,
Le Club Med



LE CLUB MED - OÙ LE RÊVE SE RÉALISE !

Vous avez besoin de détente pour vous libérer du stress qui s'accumule au travail. Le Club Med vous offre les vacances appropriées à un prix de détente.

Option 1 - Crédit de 100 \$

Les membres de l'ADC ont droit à un crédit de 100 \$ sur le prix régulier des destinations du Club Med en Amérique-du-Nord (sauf pour ce qui est des restrictions suivantes: sont exclus la période de Noël et du Nouvel An, Cancun, Turquoise et les centres de villégiature I du Club Med). L'offre dépend aussi de la disponibilité des places et vaut jusqu'au 31 octobre 1991.

Option 2 - 1 299 \$ ou 1 399 \$

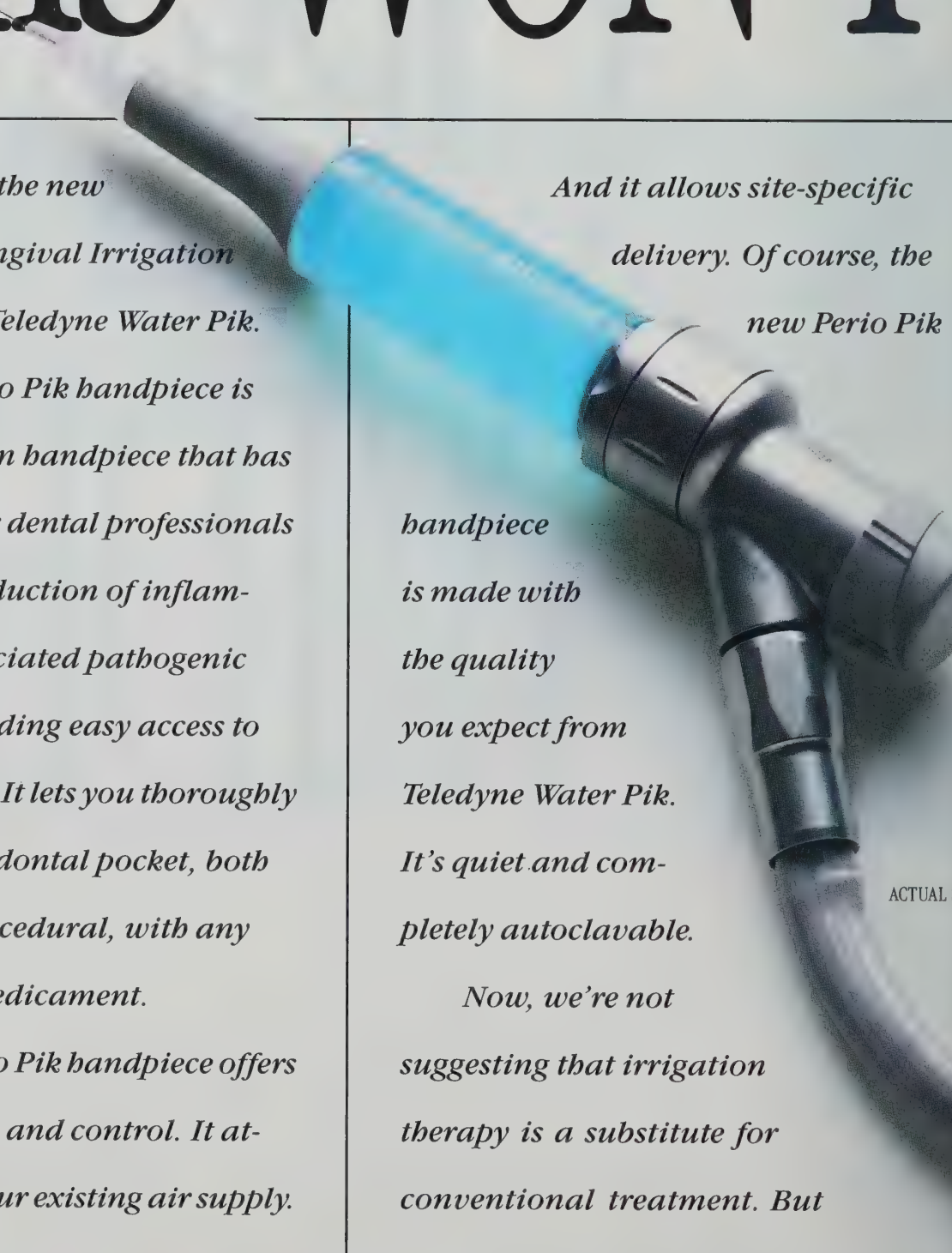
Vous pouvez faire des réservations à n'importe quelle destination d'Amérique-du-Nord (où le forfait est disponible) pour seulement 1 399 \$ en hiver ou 1 299 \$ en été, à condition de la faire 15 jours (ou moins) avant la date de départ. (Les conditions mentionnées précédemment s'appliquent ici aussi.)

Voici comment profiter de ce nouvel avantage offert aux membres:

- Téléphonnez à Janice, au Service des congrès de l'ADC : 1-800-267-6364 (pour l'Est) et 1-800-267-6354 (pour l'Ouest et le code régional 709) et donnez vos nom, adresse, numéro de téléphone, la date du voyage et le Club Med d'Amérique-du-Nord que vous avez choisi.

OPEN
WIDE.

THIS WON'T

A black and white photograph of a Teledyne Water Pik Perio Pik handpiece. The handpiece is angled diagonally across the frame. A bright blue light emanates from the nozzle, creating a glowing effect. The background is a light, neutral color.

*Introducing the new
Perio Pik™ Subgingival Irrigation
Handpiece from Teledyne Water Pik.*

*The new Perio Pik handpiece is
the first air-driven handpiece that has
been designed for dental professionals
to assist in the reduction of inflam-
mation and associated pathogenic
bacteria by providing easy access to
subgingival sites. It lets you thoroughly
irrigate the periodontal pocket, both
pre- and post-procedural, with any
antimicrobial medicament.*

*The new Perio Pik handpiece offers
both convenience and control. It at-
taches easily to your existing air supply.*

*And it allows site-specific
delivery. Of course, the
new Perio Pik
handpiece
is made with
the quality
you expect from
Teledyne Water Pik.
It's quiet and com-
pletely autoclavable.*

*Now, we're not
suggesting that irrigation
therapy is a substitute for
conventional treatment. But*

ACTUAL SIZE

TAKE LONG.

clinical research has shown that mechanical therapy alone cannot eliminate all bacteria.

And that's why controlling periodontal infections with local delivery of antimicrobial medicaments into the periodontal pocket is becoming more popular. Because reducing subgingival plaque is essential to periodontal health.

Your patients can continue their periodontal program at home under your direction, by using



one of our Water Pik® Dental Systems.

If you'd like to know more about the Perio Pik Subgingival Irrigation

Handpiece, take a

moment and mail us the attached reader service card.

We'd be glad to send you information about how subgingival irrigation can benefit your patients. And we promise it won't take long.

PerioPik™
TELEDYNE WATER PIK

Le Conseiller en SSD offre des renseignements, des idées et des conseils visant à améliorer les communications entre le dentiste et ses patients, à rendre les gens plus conscients de leur santé dentaire et à les amener à vous visiter en plus grand nombre.

Questions à poser lorsqu'on choisit une permanence téléphonique

Avant de choisir une permanence téléphonique, il est bon d'y loger quelques appels d'abord. Après, posez-vous ces questions :

Est-ce que la personne au bout du fil

- a répondu au troisième coup de sonnerie?
- vous a paru amicale?
- s'exprimait clairement?
- ne vous a pas pressé et vous a donné tout le temps voulu?
- a répété le message avec votre nom et vos numéros de téléphone pour s'assurer qu'elle les avait bien notés?

La permanence téléphonique — quelques conseils pour bien prendre les messages (2^e partie)

Le mois dernier, on a vu comment un répondeur automatique peut être utile pour votre cabinet en vous permettant de communiquer avec vos patients en dehors des heures d'ouverture. On a également vu que l'efficacité de ce moyen de communication — et, par conséquent, la satisfaction du patient — peut en grande partie dépendre de l'efficacité de la technologie et de la façon dont vous choisissez de vous en servir.

On peut dire essentiellement que les mêmes facteurs sont à prendre en considération lorsqu'il s'agit de choisir entre une permanence téléphonique et un répondeur automatique. Tout comme celui-ci, celle-là représente votre cabinet, et sa compétence — ou son incompétence — peut modifier l'idée que les patients s'en font. Il y a, bien entendu, une différence principale entre les deux systèmes : avec un répondeur, la personne qui appelle n'obtient qu'un enregistrement, tandis qu'avec une permanence téléphonique, une personne lui répond. Cette seule différence peut suffire pour que vous préfériez une permanence téléphonique. Certains patients se sentent plus à l'aise et sont plus rassurés lorsqu'ils communiquent un message urgent à une personne plutôt qu'à un appareil. Toutefois, le coût est un facteur qui peut jouer : les frais mensuels d'une permanence téléphonique dépassent en effet de beaucoup le coût d'un répondeur.

Si à votre avis la dépense en vaut la peine, voici quelques suggestions utiles pour vous assurer que votre permanence téléphonique répond le mieux possible à vos patients.

• Renseignez-vous

Il n'est guère difficile de trouver une permanence téléphonique qui vous convienne; quelques démarches suffisent. Demandez à vos collègues quel service de permanence téléphonique ils utilisent et s'ils le recommandent. Puis, sous prétexte de vouloir leur laisser des messages, logez des appels à ce service pour voir comment on vous y accueille. Si vous en êtes satisfait, ce peut être celui que vous cherchez. Mais avant de vous décider tout à fait, il serait peut-être bon que vous compariez ce service avec d'autres. Ainsi votre choix sera plus éclairé.

• Précisez ce que vous attendez du service

L'efficacité de votre permanence téléphonique dépend de vous. Si vous voulez qu'on prenne les messages d'une certaine façon et qu'on demande certains renseignements, il faut vous assurer de l'indiquer au service. Par exemple, il peut être préférable que la permanence téléphonique réponde : « Ici la permanence téléphonique du D^r Caron » plutôt que « Le cabinet du D^r Caron ». Les patients savent alors qu'il ne s'agit pas d'un membre de votre cabinet. En outre, ayez soin de préciser les renseignements que vous voulez avoir. Par exemple, le nom du patient, ses numéros de téléphone et l'objet de son appel — et soulignez bien ici combien la précision importe. Assurez-vous aussi que le service sait où et quand il peut vous joindre. Tous ces renseignements aideront le service à répondre à vos besoins et vous aideront à répondre à ceux de vos patients de la façon la plus opportune et la plus satisfaisante possible.

• Vérifiez périodiquement le service

Votre permanence téléphonique peut bien faire les choses aujourd'hui, mais qu'en sera-t-il demain? Il est donc bon que vous ou un membre de votre famille appeliez le service de temps à autre simplement pour vérifier s'il vous satisfait toujours. Dans le cas contraire, vous devez sans délai le prévenir pour que la situation soit vite corrigée. Si d'autres appels au service n'indiquent aucun progrès, il vous faudra sans doute songer à changer de permanence téléphonique.

• Soyez reconnaissant

Les répondeurs automatiques se passent volontiers de remerciements. Par contre, les personnes qui, à la permanence téléphonique, prennent vos appels trouveront gentil que vous les remerciez. Vous pouvez leur témoigner votre reconnaissance en leur envoyant une carte ou un présent à l'occasion des Fêtes ou en leur offrant un repas au restaurant. Non seulement pareil témoignage leur prouve que vous appréciez leurs services, mais encore les encourage à continuer de bien vous servir.

• Assurez le suivi

Cette suggestion reprend la dernière qu'on a donnée dans la chronique du mois passé, mais il est bon de la répéter. Un répondeur automatique ou une permanence téléphonique est simplement un moyen de vous transmettre des appels. Le reste dépend de vous. Si vous répondez aux patients rapidement et convenablement, vous les aiderez à résoudre leurs problèmes. Aussi continueront-ils d'être contents de vous. C'est ainsi que se créent et s'entretiennent de longues et fructueuses relations.

The Dental Laboratory and You

In-Ceram Bridges Natural Translucence and Strength — Without Metal

Over the years, we have all heard the claims about how metal-free ceramic restorative systems would be the new esthetic alternative to porcelain-fused-to-metal bridgework. Certainly, all-ceramic restorations are a well-established procedure in most dental practices today. However, to date, their use has been restricted to single crowns. The problem has been that the strength and longevity of all-porcelain bridges did not live up to the promises made by the marketers of the various systems.

Now, by combining new materials and new techniques, the In-Ceram System from Vita offers a bright, new future. Published research has shown that the In-Ceram System achieves three times the strength of its predecessors. And, it offers unequaled esthetics and marginal fidelity as well.

Strength and Beauty

With the In-Ceram System, a highly-stable aluminum oxide substructure takes the place of the metal framework. The homogeneous, non-porous substructure is encapsulated by a fine layer of glass, providing unprecedented flexural strength ratings in the 450-600 MPa range. This flexural strength is more than sufficient for three-unit anterior bridges as well as for individual anterior and posterior crowns. The remainder of the tooth form is then built up on the completed substructure using Vitadur-N porcelains.

Significantly, due to the translucency of the substructure and the relationship between its shading and the Vita Lumin shades of the Vitadur-N porcelain, the substructure can be made somewhat thicker than was possible with other ceramic core materials. This results in bridges with increased stability and reliability.

Optimal Translucency for Unparalleled Esthetics

Of course, the primary reason for considering an all-ceramic versus a porcelain-



Mr. H.J. (Hyo) Maier

fused-to-metal restoration is the enhanced esthetic possibilities. In-Ceram excels in this area by combining beauty with the strength and wear-resistance of porcelain. Its metal-free substructure and Vitadur-N superstructure achieve natural three-dimensional color and translucency.

With a standard metal-ceramic crown, light transmission is blocked by the metal substructure, which causes "shadows." The In-Ceram System allows light to be transmitted to the root of the tooth, radiating from there into the gingival area. This reflected light eliminates the dull, lifeless appearance that can result from metal substructures and provides truly natural translucence and vitality.

At the same time, the materials employed in the construction of an In-Ceram restoration provide a natural balance between opacity and translucency. The translucent properties of the restoration do not allow the color of the stump or of the cement used in bonding to influence the final shade. All layering and shading comes from within the restoration, as with natural dentition. This shade control is enhanced with patient-specific characterization (both internal and external) of the restoration, even on the finished crowns.

Clinically Superior

The exacting process used by the laboratory in creating an In-Ceram



Fig. 1: Three Unit In-Ceram Bridge with In-Ceram Single Crown



Fig. 2: Interior View of Case

restoration allows a marginal fit of 20-25 microns — a fit superior even to that achieved with traditional porcelain-fused-to-metal prostheses. There is no metal substructure involved so the restorations are perfectly biocompatible. This biocompatibility is enhanced by margins that provide excellent gingival response and eliminate irritation and unsightly gum recession. The absence of a metal substructure also decreases the thermal conductivity that can lead to sensitivity. Completely radiopaque, the In-Ceram System allows the dental profession to offer patients a reliable and esthetic alternative to the three-unit porcelain-fused-to-metal anterior bridge. Ask your laboratory about this exciting new treatment option today. △

Mr. H.J. (Hyo) Maier, RDT is President of Aurum Ceramic/Classic Dental Laboratories Ltd.



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Traitement

Selon la convention collective.

Entrée en fonction

Le 1^{er} septembre 1991.

Les personnes intéressées doivent acheminer leur curriculum vitae accompagné de deux lettres de recommandation au plus tard le 1^{er} août 1991 à:

Dr Monique Michaud, directrice
Département de stomatologie
Université de Montréal
C.P. 6128, succursale A
Montréal (Québec)
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Le saviez-vous?

Dans les dernières années quatre-vingts, les dommages liés à la consommation d'alcool ont coûté à l'Ontario plus de deux billions de dollars par année, soit cinq fois plus que le total des ventes d'alcool.

(Traduit de *Health Promotion*, hiver 1990/1991)

Thy Daily Bread

Imtiaz Manji, BSc

Patient flow and case acceptance are the bread and butter of dentistry. A successful practice cannot exist without them. At one time, dental practices did not have to worry about patient flow and acceptance; there was an abundance of available patients in every office. This is no longer the case. Many practices have experienced a decrease in the number of new patients coming in for treatment. As a result, stimulating the flow of patients and increasing the rate of treatment acceptance is necessary to maintain practice success at normal levels.

The average patient now expects to be offered options before committing themselves to anyone or any level of care. No longer is the health care provider able to call the shots. Patients want to participate in their care and make their own decisions. But, the typical patient does not understand the work you do in their mouths. They cannot tell the difference between good and bad dentistry. On what basis, then, are your patients making their oral health decisions? There can be a variety of answers ranging from pain to preconceptions to cost. More importantly, what is the single largest influence on the oral health decisions of your patients? For every dental practice, the answer is the same: You and your dental team.

Marketing for Practice Success

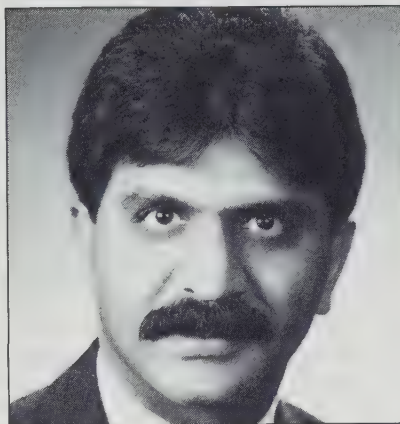
If every patient in your practice made their treatment decisions based solely on what was best for their oral health, the success of your practice would be assured. Since you have the greatest potential to affect patient decisions, your interaction with the patient is vital to the success of your practice. This is the focus of a marketing strategy in the dental office.

Specifically, a marketing strategy is designed to accomplish three goals:

- Increase new patient flow;
- Manage the continuing care of existing patients;
- Improve case acceptance.

A good marketing strategy achieves these goals by integrating four principles into each and every marketing activity:

- Increase team awareness of patient needs;



Imtiaz Manji, President
ExperDent Consultants Inc.

- Enhance communication opportunities with patients;
- Improve patient education;
- Promote the practice.

Promoting the practice is the key difference between a comprehensive marketing strategy and a simpler patient education strategy. Building on the strength of your patient education techniques, a marketing strategy grooms the messages given to your patient and helps them to understand how your practice is best-suited to care for their needs. What you are really marketing is yourself, the pride you have in your practice and your dentistry, and the respect you have for your patients.

Marketing is not advertising. Advertising, at best, satisfies only two of the four principles for marketing activities — it is a communication opportunity and it promotes the practice. Since advertising is not a patient-centered activity and does not improve patient education, it lacks the professional ethics and integrity that we expect in dentistry. Furthermore, it should be noted that advertising is the most costly form of marketing. It rarely achieves its objectives since a patient attracted to your practice by advertising is less committed than one referred by another satisfied patient. For these reasons, advertising should be the least important part of your marketing strategy.

Marketing Is Team Work

No practice has a successful marketing strategy by accident. It requires work to achieve results in the same way that a

good marriage requires work. Marketing the practice is an ongoing commitment. It must occur on a daily basis.

Because marketing really comes down to communicating your message to patients, every member of the office team must participate. The patient will interact with each one at some point and a motivated and enthusiastic team with the right tools and techniques can market the practice successfully everyday.

Each contact or patient visit is a marketing opportunity for your team, including on the telephone, a patient consultation, correspondence, case presentations, "small talk" at chairside, at the front desk or sitting in the reception area.

Your marketing strategy must ensure that the patients are getting the information you want them to know about your practice. You need to be sensitive to all forms of communication including written, spoken, exhibited and non-verbal messages.

The Marketing Coordinator

Start your marketing plan by appointing a marketing coordinator for the practice. This individual's role is to "put themselves in a patient's shoes." Their responsibility is to keep their eyes and ears open to how the practice appears, communicates and relates to patients. Allow an hour or two each day for the marketing coordinator to work on marketing strategies.

On a monthly basis, the marketing coordinator should chair a team-meeting to discuss marketing issues with the entire office staff. The purpose of the meeting is to field ideas from all team members, review the progress of existing marketing strategies, and build team spirit by examining successes in the past month.

The marketing coordinator's primary objective is to pull the practice together in a spirited, goal-driven marketing plan. The coordinator must keep an inventory of all marketing activities occurring in the practice and must monitor the effectiveness of each one on a monthly basis. As with all practice management strategies, those that work should be kept; those that don't work should be replaced by more effective methods.

The simplest method I have found to

organize a marketing plan is to break them down into the following categories:

- Pre-visit;
- In Office;
- Post-Visit;
- Referral.

These categories allow you to focus the activities of the marketing coordinator and direct your marketing plan for maximum effectiveness.

Pre-Visit Strategies

It is often said that first impressions are lasting impressions. For a new patient in your practice, their first contact with you is likely to be by telephone. For this reason, your telephone techniques must be polished and professional. The telephone is one of the most powerful marketing tools available to the dental profession, but many practices under-utilize its abilities.

While using the telephone, your team must speak clearly, finish conversations briskly and efficiently and handle all patient concerns. Your receptionist must smile on the telephone because the tone of her voice conveys an attitude about your practice. Always answer the telephone in two rings and identify the practice properly. Avoid using the hold button as much as possible.

These are all common-sense techniques, but many practices don't pay attention to them because they are so basic. It is worthwhile for your team to attend a telephone training course offered by the phone company. These courses show you how to get the most out of your telephone contact with patients.

Pre-Visit Activities for the Marketing Coordinator:

- Develop an information kit to be mailed to new patients before their first appointment.
- Audit the telephone skills of each team member. Do this by recording some phone calls and analyzing how the patient was handled and how the team member dealt with the patient's concerns.
- Examine the external appearance of the practice from the street level and seek methods to improve the practice's image.

In Office Strategies

Focussing especially on the new patient experience, in-office marketing strategies emphasize the effectiveness of face-to-face contact with the patient.

When the patient arrives in your practice, ensure they are not kept waiting. If the patient is in pain, minutes can seem

like hours. Keep track of patient arrival times. If the patient has to wait for more than 10 minutes past their appointment time, they should be telephoned later and apologized to for the inconvenience. Make your reception area comfortable. Serve the patient coffee, tea or juice while they wait. Provide them with a courtesy telephone in the reception area.

The new patient experience is a critical part of a marketing strategy. This is when you impart your practice philosophy and create a relationship with the patient. The new patient experience is the primary opportunity you have to find out everything you can about your patients and to provide them with useful information on their dental health.

It is critical to show concern for the patient during the first visit. This concern can be communicated by responding carefully to the patients' concerns and giving them a good understanding about your practice. Details are important! Your patients will appreciate you more when you take the time to go over little things like where the best place is to park.

Not everyone can be a good communicator. This is why communications training is important. Many practices simply need to organize the thoughts they want to communicate to patients. This is where a practice brochure is useful. Not only does the brochure get circulated outside the dental practice, but it can be used during the new patient experience as an outline for your team to follow.

The brochure can cover all the topics you want to discuss during the new patient consultation, including practice capabilities, financial policies, insurance, the first visit, philosophy on preventive dentistry, parking, team qualifications, etc. A good practice brochure helps you to integrate the patient into the practice, and him or her to understand all that you offer them. The brochure and your communication with patients must emphasize how wonderful the practice really is and your commitment to excellence. Your actions in the practice must reflect this point of view.

In Office Activities for the Marketing Coordinator:

- Develop a practice brochure.
- Follow a new patient through their entire visit and observe the practice from their perspective.
- Make the reception area as comfortable as possible.
- Develop a practice album. Before and after.
- Build team spirit by celebrating each new patient.

- Create some fun activities for children such as contests, nintendo games, No Cavity Club, etc.
- Audit the communication skills of every team member and develop better responses to common questions and concerns.
- Develop an integrated approach to the new patient that results in the most positive and informative experience possible for the patient.
- Monitor case acceptance levels and ensure treatment plans are completed. Telephone patients who left before setting up their next appointment.

Post-Visit Strategies

Communication with the patient after their visit is important if you ever want to see them again. If you do not have contact with the patient between visits, then your relationship is deteriorating. Most practices rely on an inefficient recall system to handle all post-visit contact. This strategy is rarely effective enough to control slippage.

Keep the patient informed about the practice through a quarterly newsletter. The purpose of a newsletter is to remind patients that you are keeping track of them and want to guarantee their best oral health. Use the newsletter to discuss what is going on in the practice. Remind patients about practice hours, emergency telephone numbers and the importance of continuing care. Use the newsletter to discuss continuing education taken by the staff, new procedures that you offer and special services you provide like a fax machine for business people or an infant room for parents. Also let patients how much you appreciate referrals. Most importantly, keep the newsletter informal and newsy, like you are talking to a friend. Your patients will respond in kind.

Follow-up techniques are also good marketing opportunities. Telephone patients whenever you can. Make concern calls to patients after a difficult procedure. Call patients who missed their appointment. I think the most important call is to a patient who has decided to leave the practice. Find out why they are leaving and if they have been satisfied with the care you have provided. Patients who are dissatisfied will likely give you reasons that you can address. Sometimes you can communicate then and there to reactivate the patient. Very often, you can take measures to ensure other patients don't leave for the same reasons in the future.

Remember, most successful practices are high contact, high touch practices.

They write and call and see the patient continually.

Post-Visit Strategies for the Marketing Coordinator:

- Write a quarterly practice newsletter.
- Make follow-up and concern calls to as many patients as possible.
- Send out surveys to a group of patients each month asking them to evaluate the practice's performance during their last visit.
- Call emergency patients to ensure their concerns have been handled and that they have a regular practitioner caring for them.
- Send out event correspondence such as birthday cards or seasonal wishes.

Referrals

Turning each satisfied patient into a marketer for your practice is the surest way to build your patient base. Your patients are the most valuable asset of your practice and are also the most valuable marketing members of your team. Making your patients comfortable, happy and committed to your practice is the goal of your marketing program. Your patients must know that you provide the best environment and care for their needs. From this understanding, patients make referrals.

Referral management is the least expensive and most effective method to build the patient base. Practices that do not have good referral rates either treat the patient with little respect or they fail to ask patients for referrals. When a patient makes a referral to your practice, you must acknowledge and appreciate the patient. This communicates that you value their contribution to your success and encourages the patient to continue to refer friends to your practice.

The power of referrals is a simple philosophy: Respect your patients; provide the best care you can; develop friendships; appreciate contributions; celebrate each referral as a compliment to your team; and maintain enthusiasm.

You need to identify the referral source of every new patient and you need to thank each one. Communicate with referral sources while they are in the practice by telling them how much you value their confidence. Patients that refer constantly should be recognized with a gift like a book, flowers or cassette tape. Don't ignore professional referral sources either. Keep other professionals in your area informed about your practice.

Don't be afraid to ask for referrals. Asking for a referral can be accomplished as simply as letting patients know you are

accepting new patients, asking about friends and family members, and telling your patients that a referral is the best compliment you can receive.

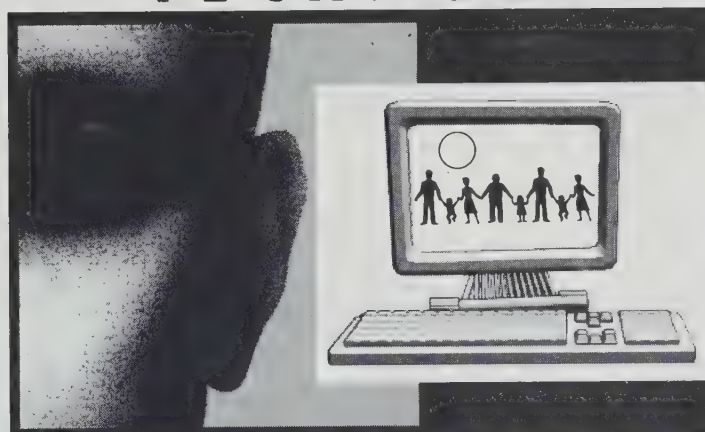
Referral Strategies for the Marketing Coordinator:

- Since referrals are a compliment to every team member, each one should sign every acknowledgement.
- Send referral acknowledgement letters.
- Keep track of patients that refer constantly and make special efforts to thank them.
- Build a spirited team-approach to patient flow by encouraging and rewarding staff members who make and receive referrals.

Marketing Makes Sense

Marketing in the dental practice is a combination of common sense, enthusiasm and effective communication techniques. You must recognize the aspects of your practice that improve your reputation and public awareness. Be assertive in your communications to let people know what you're doing, why you're doing it, and how it can benefit them. Build up the human bonds with your patients through continued client contact. The result will be happy, satisfied patients who will trust you to meet their health care needs and will boost your professional credibility through a steady flow of referrals.

TECHNOLOGY



Automating the dental practice has many benefits. Many of the practices I have worked with have computerized for administrative reasons. They want to keep track of patient information, billings, insurance and accounts receivables. The computer is ideal for these purposes since it can process and store a large amount of information quickly. But a carefully selected computer system can provide many other benefits to the practice, particularly in the area of internal marketing.

Undoubtedly, one of the most significant advantages to computerizing the dental office is providing each staff member with immediate access to patient scheduling and insurance information. Chairside terminals in each operatory allow your assistants and hygienists to perform tasks formerly relegated to the front desk staff. Decentralizing information and redistributing the workload of the practice allows you to capitalize easily on marketing activities.

For example, if a patient mentions

during their visit that they prefer morning appointments, an assistant or hygienist can instantly make a note of this in the computer while communicating with the patient. They will appreciate the personalized service and your attention to detail. Similarly, with insurance information available at the touch of a key, all team members can help the patient understand their exact insurance benefits. Patient education is enhanced and acceptance is easier to achieve.

Here are eight key areas where practice marketing is aided by automation:

Family Approach

A computer system can simplify family tracking. On your screen you can see all members of the patient's family. You know instantly if other family members have missed appointments, have outstanding treatment plans or are overdue for the continuing care visit. When you are on the telephone to one family member, you can resolve all these issues at once.

Insurance Management

Patients generally do not understand the benefits they are entitled to under their insurance plan. By recording detailed insurance information in the computer system, you can discuss the patient's insurance benefits with them during a case presentation. You know at the touch of a key what procedures are covered, by how much, and any limits or deductibles that are in place. This allows the patient to make a more informed decision about their costs on treatment that is required.

Recall System

Computers are ideally suited to manage your recall strategy. A good computer system can generate a list of patients each day that are overdue for their continuing care. From these lists, your team can make follow-up phone calls targeting exactly those patients that need to be contacted. When the patient comes in for their appointment, the recall can be easily updated.

The Personal Touch

Developing strong relationships with patients is the key to retention. This process can be enhanced by relevant small talk at chairside. Your computer system can remember important dates and details about a patient's interests or hobbies. This allows your team to discuss topics of relevance to the patient and engender feelings of personal concern and friendship for the patient.

Label Generation

Addressing correspondence and recall cards is a tiresome process. The computer can reduce the time required by quickly printing a separate address label for each piece of correspondence.

Referral Processing

Keeping track of referral sources is one of the most effective internal marketing methods. The computer can store this information for you automatically, generating lists of referral sources that should be acknowledged. By generating a cus-

tom report on referral sources, you can quickly discover who is referring the most patients to your practice.

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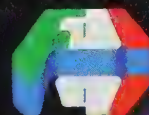
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Lettre ouverte d'un séropositif aux professionnels de la santé

Note de la rédaction: La lettre de M. Bell est reproduite avec l'autorisation du HIVupdate (vol 1, n° 1, hiver 1990) publié par le ministère de la Santé de l'Ontario.

M. Bell habite à Ottawa, a 40 ans et est diplômé en économie. Il se spécialisait dans la gestion du personnel, l'embauche, les avantages sociaux et les évaluations de tâches.

Depuis dix ans, il pratique le mode de vie gai. Il a appris qu'il était séropositif en mars 1990 et a cessé de travailler en novembre suivant.

Le 10 mars 1990 a marqué un tournant dans ma vie. Ce jour-là, j'ai été confronté à mon état de séropositif. Non seulement les médecins m'ont-ils appris que j'étais contaminé par le virus, mais aussi que j'avais une pneumocystose. Je me souviens que ce diagnostic m'a complètement sidéré.

J'ai pensé alors que si la mort devait me libérer de la fatigue, de la diarrhée et d'une mobilité réduite, je l'accueillerais volontiers. Mais grâce à une série de consultations, à des transfusions sanguines, à un régime alimentaire contrôlé et à des médicaments, les médecins sont parvenus à réduire plusieurs de mes symptômes. Bref, leurs compétences techniques ont été — et sont — incroyables. Je continue de faire un travail exigeant (durant toute cette crise, j'ai été absent seulement une semaine) et je fais du bénévolat dans un centre de services sociaux d'Ottawa.

On ne peut mettre en doute la compétence et le dévouement dont les professionnels de la santé ont fait preuve à mon endroit et à celui d'autres séropositifs. J'ai besoin toutefois qu'ils voient un autre aspect de mon état. Je veux qu'ils sentent et comprennent ma douleur devant les occasions perdues, l'énergie qui m'abandonne et la mort qui approche. Je veux aussi qu'ils respectent mon droit de choisir parmi les traitements qu'ils m'offrent ainsi que la façon dont je veux vivre le reste de ma vie.

Il est extrêmement important pour moi qu'on me tienne totalement au courant des progrès de ma maladie, qu'on m'informe sur le choix des traitements disponibles, qu'on m'indique leurs conséquences possibles et qu'on me traite avec dignité et respect. J'ai besoin que les professionnels de la santé et les autres me donnent le temps qu'il faut pour poser des questions et bien me renseigner afin de pouvoir prendre de bonnes décisions à mon sujet.

La plupart du temps, les professionnels de la santé que j'ai vus m'ont respecté, mais parfois non. Quand il s'agit d'exiger des services appropriés du milieu professionnel, je sais m'affirmer avec raison. Mais qu'en est-il du séropositif qui en est incapable et qui a appris de la société à ne pas contester les autorités ou à ne pas s'opposer à ceux qui détiennent le pouvoir?

Je demande à ceux qui prennent soin des autres de nous permettre de poser des questions et de nous sentir impuissants et désespérés lorsque nous le sommes. Outre les traitements médicaux, cette marque de sensibilité et de soutien fera beaucoup pour favoriser la guérison de nos esprits.

Rick Bell, Ottawa, Ontario

Conférence de l'ADC sur le SIDA

Les 14 et 15 avril derniers, l'ADC a parrainé une conférence qui restera dans les annales de l'organisme. Ayant pour thème les conséquences que le virus HIV et d'autres agents infectieux peuvent avoir sur les soins bucco-dentaires, la conférence a porté spécifiquement sur les grands problèmes d'hygiène publique causés par le SIDA et sur les répercussions qu'ils ont pour les professionnels de la santé bucco-dentaire des points de vue déontologique, juridique et professionnel.

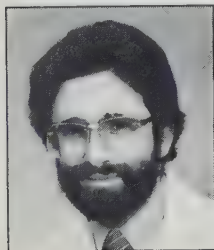
Tenue à Ottawa et organisée par le Comité de déontologie de l'ADC — qui a reçu un généreux appui de Santé et Bien-être social Canada par l'entremise du Centre fédéral du SIDA à la Direction générale de la protection de la santé —, la conférence a réuni des personnes représentant les associations et les ordres professionnels des provinces, les hygiénistes, les assistantes, les écoles de médecine dentaire, les étudiants et le Service dentaire des Forces canadiennes.

Durant la conférence, on s'est fixé deux objectifs principaux :

1. définir les questions d'ordre déontologique, juridique et professionnel que les maladies infectieuses comme le SIDA posent en pouvant se transmettre entre praticiens et patients;
2. inciter les enseignants en médecine dentaire tant au niveau universitaire qu'en éducation permanente à donner dans leurs cours les dernières informations scientifiques, déontologiques, juridiques et professionnelles touchant la transmission du virus HIV et des autres agents infectieux dans les milieux de la santé.

La première journée de la conférence, des experts ont présenté des exposés sur les différents points de vue du sujet, puis la seconde, l'auditoire et un panel réactif formé lui aussi de représentants de tous les groupes dentaires ont posé des questions aux experts.

Faits saillants



Un diplômé de l'American Board of Oral Medicine, le Dr Joel Epstein fait partie du personnel médical et dentaire de la British Columbia Cancer Agency et est directeur de la

Division de la médecine buccale et de la dentisterie clinique à l'Hôpital général de Vancouver. De plus, il enseigne à la Faculté de dentisterie de l'Université de la Colombie-Britannique.

Le point de vue épidémiologique

Le Dr Epstein a voulu résumer les publications des dix dernières années portant sur les professionnels de la santé qui travaillent dans des milieux à risques élevés, plus particulièrement ceux qui soignent les sidéens et les séropositifs. En tout, il a relevé quelque trente cas où un professionnel de la santé a pu être contaminé par un patient et, le plus souvent, ce sont les objets pointus ou tranchants qui ont constitué le plus grand danger.

Dans une étude, on a dénombré 2024 cas d'exposition percutanée dont six ont entraîné une séroconversion (soit un taux inférieur à 0,3 %). Et dans 668 cas d'exposition des muqueuses, on n'a relevé aucune séroconversion. Ce sont donc les expositions percutanées qui présentent les plus grands risques.

Touchant les risques auxquels sont exposés les professionnels de la santé dans leur milieu de travail, les données recueillies par les Centers for Disease Control (CDC) aux États-Unis paraissent négligeables : la plupart des professionnels de la santé qui sont séropositifs ont été soumis à d'autres risques comme les rapports sexuels et les agents hématogènes.

Pour les transmissions contraires, c'est-à-dire d'un praticien à un patient, le seul cas signalé est celui du dentiste sidéen de la Floride qui aurait contaminé trois de ses patients. À ce sujet, cependant, de nombreuses questions sont restées sans réponse. Par contraste, le Dr Epstein a cité des études suivant lesquelles des chirurgiens séropositifs ont continué à soigner des patients sans les contaminer. Ainsi, sur les quelque 1500 patients soignés par différents chirurgiens de différents cabinets et soumis à des tests sérologiques, on a découvert que tous étaient séronégatifs.

Par ailleurs, le Dr Epstein a fait observer que le virus HIV n'est pas le seul agent infectieux dont les praticiens doivent se méfier. Quand on parle de risques de transmission, a-t-il noté, il y a d'autres agents hématogènes qui sont sans doute beaucoup plus importants que le virus

HIV. Par exemple, le virus hépatique B pose encore un problème et se transmet beaucoup plus facilement que le virus du SIDA. Il constitue probablement le meilleur modèle pour étudier les risques associés aux agents hématogènes. Enfin, a conclu le Dr Epstein, on découvre sans cesse de nouveaux agents infectieux et pathogènes qui pourront avoir des conséquences pour les professionnels de la santé.



Diplômé en médecine dentaire de l'Université de l'Alberta en 1968, le Dr Rick Mathias est chargé de cours au Département des soins de santé et d'épidémiologie de l'Université

de la Colombie-Britannique. Il s'intéresse plus particulièrement aux programmes et aux mesures d'immunisation ainsi qu'aux études sur la propagation des maladies transmissibles.

Selon le Dr Mathias, on connaît assez bien depuis sept ou huit ans le SIDA du point de vue épidémiologique, et les moyens utilisés pour détecter la maladie sont plus que satisfaisants. Le virus HIV se répand par les rapports sexuels et par voie percutanée, non par des contacts physiques ou oraux intimes ni par des aérosols. D'après les données canadiennes, américaines et européennes, il n'y a pas de grands risques pour que les professionnels de la santé l'attrapent dans l'exercice de leur profession.

Aussi, a souligné le Dr Mathias, les procédures actuelles pour réduire les risques d'infection, qui vont de pair avec les précautions adoptées mondialement, sont nettement suffisantes pour prévenir la transmission du virus HIV. On a suffisamment la preuve, a-t-il dit, que la transmission du virus ne peut être associée à **aucune** procédure utilisée dans la prestation des soins de santé.

Commentant le cas des patients contaminés en Floride, le Dr Mathias a déclaré qu'il serait prématuré, compte tenu des données épidémiologiques disponibles, de fonder sur ce cas isolé toute décision touchant les procédures actuelles.

« N'exagérons rien, a-t-il dit, et songeons plutôt à rassurer le public. Chaque jour, des dizaines de milliers de procédures médicales ont lieu dans le monde entier sans risques pour les patients. Il convient

de le dire et de le répéter. À mon avis, il n'y a pas de risques que le virus HIV se transmette durant la prestation des soins, et ce message, il convient de le communiquer au public. »

Même si l'hépatite n'effraie pas autant que le SIDA, a noté le Dr Mathias, on devrait adopter pour l'hépatite un moyen de surveillance aussi vigilant que celui qu'on utilise pour le SIDA, étant donné que le virus de l'hépatite B est beaucoup plus infectieux que le virus HIV. Ce moyen de surveillance constituerait une mesure très précise des vrais risques auxquels peut être exposé le public. « À mon avis, a-t-il conclu, on découvrirait que les risques sont infiniment minimes. »



Un pathologiste buccal, le Dr John Hardie est directeur de la Dentisterie à l'Hôpital général de Vancouver. Il représente la profession dentaire aux comités du SIDA provincial, national

et international ainsi que l'Association dentaire canadienne aux assemblées des Centers for Disease Control, à Atlanta.

Touchant la prestation des soins dentaires aux séropositifs, le Dr Hardie a tâché de présenter le point de vue du praticien.

De mars 1987 à mars 1990, a-t-il noté, vingt et un articles ont paru en Amérique du Nord et au Royaume-Uni sur l'attitude des dentistes à l'égard des séropositifs et des sidéens. Dans quinze de ces articles, il a relevé trois thèmes dominants :

1. l'attitude des dentistes, leur comportement et leurs connaissances touchant les séropositifs.
2. l'attitude des patients non contaminés.
3. les expériences des patients séropositifs chez le dentiste.

De ces trois thèmes dominants, le Dr Hardie a déduit que dentistes et patients peuvent avoir les attitudes suivantes :

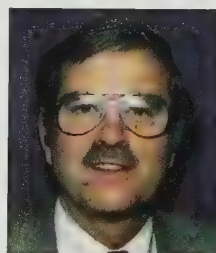
1. Les dentistes croient avec quelque raison que s'ils traitent des séropositifs ou des sidéens, leur clientèle baissera nettement.
2. Les dentistes et leurs employés craignent toujours la transmission du virus au cabinet.
3. Les dentistes croient qu'il leur faut des compétences spéciales pour bien traiter les séropositifs et les sidéens.
4. Les dentistes ont une connaissance moins que satisfaisante des manifestations buccales de l'infection.
5. On ne sait pas jusqu'à quel point les

dentistes peuvent être homophobes, et il se peut que ce facteur contribue à la répugnance qu'ils éprouvent à traiter des sidéens.

Par ailleurs, a continué le Dr Hardie, ces études accusent un paradoxe : d'un côté, les dentistes se sentent professionnellement tenus de traiter les séropositifs et les sidéens, mais de l'autre, 68 % répugnent à leur donner des soins. Pourtant, des études démontrent que les sidéens reçoivent quand même des soins, mais qu'ils les reçoivent d'un petit groupe exclusif de professionnels de la santé.

Pour terminer, le Dr Hardie a fait observer que ces dernières données provenaient de publications parues entre mars 1989 et mars 1990 et qu'une étude faite plus récemment aux États-Unis a révélé un changement d'attitude chez les dentistes. Parmi ceux à qui on a demandé s'ils étaient disposés à traiter des sidéens, 60 % ont répondu oui.

Le point de vue de l'éducation



Un pathologiste buccal, le Dr Henry Dick est professeur et vice-doyen à la Faculté de dentisterie de l'Université de l'Alberta où il s'occupe des programmes de formation, des

affaires étudiantes et des universitaires.

Selon le Dr Dick, les facultés de médecine dentaire comprennent bien la nature et l'étendue des risques d'infection et elles renseignent assez bien les étudiants à ce sujet. « Nous savons comment réduire les risques dans le milieu clinique, a-t-il dit, et les directives que nous donnons à ce sujet sont fondées sur ces connaissances.

« Mais lorsqu'il s'agit de proposer des exemples et de faire appliquer les directives enseignées, nous demeurons en reste. Nous ne sommes vraiment pas très clairs quand vient le moment de définir les responsabilités des étudiants relativement à celles de leur faculté. On assume que les étudiants sont responsables et la faculté non. De plus, il y a des problèmes et des limites lorsque les connaissances touchant la réduction des risques d'infection sont transmises du personnel aux étudiants — surtout quand on parle des changements de comportement. »

Par ailleurs, a expliqué le Dr Dick, les facultés sont prises au dépourvu par la montée en flèche des coûts. En 1986-1987, la Faculté de dentisterie de l'Université de l'Alberta a dépensé 24 000 \$

en fournitures pour réduire les risques d'infection. En 1991, cette somme s'est élevée à 54 500 \$.

Enfin, il reste à résoudre de nombreuses questions d'ordre clinique et déontologique touchant la réduction des risques d'infection. Le Dr Dick en a posé plusieurs auxquelles il n'est nullement aisé de répondre. Par exemple, faut-il soumettre les étudiants et les praticiens d'une faculté à des tests pour savoir s'ils ont l'hépatite ou le SIDA? Et s'ils l'ont, doit-on restreindre leurs activités professionnelles? Que faire des questions d'éthique et de la stigmatisation pouvant frapper les étudiants, les praticiens et les patients contaminés? Que doivent faire les facultés quand il est prouvé que des étudiants ou des professeurs ne se conforment pas aux directives pour réduire les risques d'infection? Et quand on sait que les ressources actuelles sont déjà insuffisantes, doit-on mettre en place des mécanismes de contrôle pour s'assurer que les directives sont suivies?

« Nous avons besoin de meilleures données scientifiques sur la gestion des risques, a reconnu le Dr Dick. L'idée d'avoir des normes mondiales pour prévenir la propagation du SIDA est généralement acceptée malgré le peu de preuves que nous ayons de leur efficacité. Avec de meilleurs données scientifiques, nous serions sans doute en mesure d'identifier plus sûrement les patients à risques élevés et, ainsi, d'appliquer des normes spécifiquement conçues pour gérer ces risques. »



Chargé de cours attaché à la Division de la dentisterie pédiatrique de l'Université Dalhousie, le Dr Don Cunningham étudie les conséquences des maladies infectieuses

sur l'exercice de la dentisterie. Pendant trois ans et demi, il a tenu une clinique de soins spéciaux à l'Université Dalhousie.

Il est évident, a commencé par dire le Dr Cunningham, que le virus HIV et le SIDA sont liés à l'ignorance et à la peur de l'inconnu. Même si les cours offerts en éducation permanente peuvent aider à vaincre cette peur et cette ignorance, bon nombre de dentistes ne suivent pas ces cours.

Se référant à deux études comprenant des données recueillies durant les quatre dernières années sur l'intérêt que la profession peut démontrer pour les cours sur le SIDA, le Dr Cunningham a révélé qu'en Colombie-Britannique où l'éducation permanente est obligatoire et en Nouvelle-

Écosse où elle ne l'est pas, seulement 20 % des dentistes ont suivi des cours sur la réduction des risques d'infection. [Le Dr Cunningham a précisé que les études portaient uniquement sur les cours offerts par des universités.]

Dans les deux provinces, on a compté deux auxiliaires pour un dentiste inscrit à ces cours. Aussi, a souligné le Dr Cunningham, ces cours n'ont-ils pas le succès escompté. « Le virus HIV n'est pourtant pas le dernier auquel nous aurons affaire, » a-t-il dit, s'empressant de suggérer que les facultés et les associations devraient élaborer un programme de formation qui couvrirait de façon cohérente toutes les procédures à suivre pour réduire les risques d'infection. Il a également recommandé la rédaction d'un guide pratique qui pourrait servir partout au pays.

Le point de vue des ordres professionnels



Le Dr George Peacock est le secrétaire-trésorier du Collège des chirurgiens dentistes et de la Saskatchewan et donne des cours au Collège de la dentisterie de l'Université de la Saskatchewan. Il a déjà été président du Conseil de déontologie de l'Association dentaire canadienne.

Pour les dentistes, a commencé par souligner le Dr Peacock, il est important de se rappeler que, même si les professions autonomes ont le droit de formuler leurs propres règlements, ce sont les gouvernements qui dictent les lois.

Malgré tout, a-t-il poursuivi, le public se laisse influencer par les médias et de nombreuses personnes téléphonent aux ordres professionnels pour se renseigner. Aussi, lorsque l'incident survenu en Floride a fait la manchette, le nombre des appels a-t-il augmenté. Le plus souvent, a précisé le Dr Peacock, les gens veulent savoir s'il y a des dangers à rendre visite au dentiste et si les dentistes suivent les règles de prévention recommandées.

La profession, a déclaré le Dr Peacock, doit lancer un programme de sensibilisation au SIDA que les gens pourront facilement reconnaître et identifier afin d'être persuadés que la profession se soucie de leur bien-être. En tant qu'organismes qui conférons l'autorisation d'exercer, a-t-il poursuivi, nous avons besoin d'un public éclairé et doué d'un esprit critique tout comme nous avons besoin de praticiens consciencieux et d'un protocole pratique

pour mesurer régulièrement le degré de sûreté des cabinets.

Réfléchissant au rôle des ordres professionnels touchant la réduction des risques d'infection, le Dr Peacock a présenté les suggestions suivantes :

1. Comme l'ADC a formulé des directives, il conviendrait de s'assurer qu'elles sont suivies et révisées conformément aux dernières découvertes scientifiques.
2. Il conviendrait de lancer un programme de sensibilisation pour informer le public sur les mesures prises par la profession en vue de réduire les risques d'infection. À l'aide de brochures, de dépliants, de bulletins, de communiqués de presse et d'autres publications, on expliquerait aux gens, dans un langage facile à comprendre, les normes mises en vigueur pour les protéger.
3. Il conviendrait que le public puisse voir que les praticiens dentaires, dans l'exercice quotidien de leur profession, appuient et suivent les directives recommandées.
4. Il conviendrait que les ordres professionnels incitent les professionnels de la santé à suivre des cours sur le SIDA et qu'il y ait pour toutes les branches de la profession des séminaires sur la réduction des risques d'infection. [Certains suggèrent même que les séminaires et l'inspection des cabinets deviennent obligatoires.]

Les points de vue juridique, professionnel et financier



Registraire suppléante du Collège royal des chirurgiens dentistes de l'Ontario, le Dr Minna Stein a comme principale responsabilité l'administration relative à la Loi sur les sciences

de la santé. Elle s'intéresse particulièrement à la réduction des risques d'infection et prononce souvent des conférences à ce sujet à l'intention des professionnels dentaires.

Le Dr Stein a abordé un point délicat : la déclaration des professionnels de la santé qui sont séropositifs et plus particulièrement celle des dentistes qui ne travaillent pas ordinairement dans le milieu hospitalier. À son avis, pour étudier cette question, il conviendrait pour chaque cas de créer un comité comprenant des experts locaux ayant des connaissances spéciales en dentisterie et le médecin du praticien

dentaire séropositif — lequel comité, tenu à la plus stricte confidentialité, déciderait si celui-ci peut adéquatement et sans danger continuer à soigner des patients.

Cependant, la création de pareils comités n'est pas sans soulever des questions :

1. Ces comités seraient-ils responsables devant la loi si un praticien séropositif dont ils auraient restreint l'exercice contaminait un patient?
2. Comment pourraient-ils s'assurer que le praticien séropositif respecte les restrictions qui lui seraient imposées? Seroit-ce la responsabilité des ordres professionnels?

3. Qui ferait le suivi nécessaire?

En admettant qu'on trouverait des réponses satisfaisantes à ces questions, il faudrait encore déterminer s'il conviendrait vraiment de mettre en vigueur une politique interdisant aux praticiens contaminés d'exécuter des procédures invasives. Il faudrait en outre s'assurer que pareille politique est conforme à la *Charte des droits et libertés* et qu'elle est utile.

Comme l'a noté le Dr Stein, même si imposer des restrictions aux praticiens dentaires contaminés était convenable et justifiable, il faudrait également tenir compte des problèmes d'ordre pratique. Par exemple :

1. Comment identifierait-on les praticiens contaminés? En rendant obligatoires les tests sérologiques, résoudre-t-on ce problème?
2. Combien souvent faudrait-il imposer les tests aux praticiens?
3. Comment garderait-on les renseignements confidentiels?

Cherchant à deviner l'avenir, le Dr Stein pense que l'on formulera des politiques pour :

- continuer à inciter les praticiens à appliquer rigoureusement les mesures visant à réduire les risques d'infection;
- encourager les praticiens à déterminer leur propre état sérologique afin de protéger leur santé et l'améliorer;
- encourager les praticiens contaminés à subir des examens périodiques afin de connaître leur état de santé et savoir s'ils doivent restreindre leurs activités professionnelles;
- encourager les praticiens contaminés à aviser les organismes compétents afin d'avoir leur aide au besoin;
- statuer que l'infection d'un praticien ne constitue pas une raison suffisante en soi pour restreindre ses activités professionnelles.



Un comptable agréé, M. Kingsley Butler est attaché depuis dix ans au Canadian Dental Service Plans Inc. dont il est actuellement vice-président. Il se spécialise dans l'interprétation des

régimes d'assurance pour invalidité prolongée et pour faute professionnelle.

M. Butler a parlé des conséquences que les maladies infectieuses comme le SIDA ont sur le marché des assurances. En effet, nombreux sont les professionnels de la santé qui se demandent comment leurs régimes d'assurance pour faute ou responsabilité professionnelle seront touchés. Avant de répondre, M. Butler a tenu à préciser que ses observations valaient seulement pour le Régime d'assurance des dentistes du Canada (RADC) offert par la société Guardian Insurance of Canada et qu'il peut en être autrement pour les régimes d'assurance du Québec et de l'Ontario.

On a demandé à la société Guardian, a-t-il dit, ce qu'il adviendrait si un dentiste ignorait les règlements touchant la déclaration des maladies comme ceux qu'a adoptés l'Association dentaire américaine. Serait-il indemnisé s'il était reconnu coupable de faute professionnelle?

Dans sa politique visant les fautes professionnelles, a expliqué M. Butler, la société a une clause restrictive prévoyant que cette assurance ne s'applique pas dans le cas des atteintes imputables à un acte criminel ou à la violation d'une loi ou d'un arrêté (un arrêté étant défini comme un règlement émanant d'une municipalité ou d'un ordre et n'étant pas compris dans les lois fédérales ou le droit écrit).

Voulant expliquer davantage ce point, M. Butler a déclaré : « Si les ordres professionnels des provinces adoptent des règlements à ce sujet et les font incorporer dans les lois provinciales régissant la profession dentaire, et si un praticien enfreint ces règlements, le RADC ne l'indemniser pas s'il commet une faute professionnelle. Par contre, si les règlements sont agréés seulement par l'ADC ou les associations provinciales (qui ne sont pas des organismes de réglementation), le RADC l'indemniserait parce que dans ce cas les règlements n'ont pas force de loi.

Autrement dit, a poursuivi M. Butler, si des règlements font l'objet d'une loi et qu'un praticien les enfreint, son régime ne le couvre pas. Mais si les règlements ne font pas l'objet d'une loi, son régime le couvre.

Un autre point qui intéresse particulièrement les praticiens, a relevé M. Butler, c'est l'assurance pour invalidité prolongée qui garantit le revenu professionnel et la couverture des frais généraux.

Qu'advient-il de cette assurance quand un dentiste est séropositif et ne peut plus exercer parce qu'il est handicapé ou que son ordre professionnel le lui interdit?

Dans ce cas, a expliqué M. Butler, l'assurance-invalidité prolongée garantit le revenu personnel du dentiste alors que l'assurance-frais généraux protège l'investissement qu'il a fait dans son cabinet. Encore ici, M. Butler a fait observer que ses commentaires valaient seulement pour les régimes du RADC et que pour ces régimes l'assureur est la Metropolitan Life. Or, en vertu des contrats conclus avec cette société, l'assureur verse des indemnités seulement quand il obtient du dentiste assuré la preuve qu'il est invalide et soigné par un médecin.

De l'avis de la Metropolitan Life, un dentiste séropositif ou atteint d'une maladie infectieuse qui perdrait l'autorisation d'exercer à cause de son état de santé aurait droit de toucher les indemnités prévues par les régimes d'assurance du RADC pour invalidité prolongée et les frais généraux. Toutefois, pour les toucher régulièrement, il lui faudrait de temps à autre fournir la preuve que ses tests sont toujours positifs. Bien entendu, si les restrictions frappant le dentiste sont levées, les indemnités seront diminuées ou supprimées.

Paraphrasant les conditions liées aux régimes d'assurance, M. Butler a précisé que « si un praticien apprend de son médecin qu'il a une maladie infectieuse et s'il subit une perte de revenu à cause de cette maladie, que ce soit oui ou non en vertu d'une politique ou d'un règlement et que ce règlement ait oui ou non force de loi, il sera indemnisé aussi longtemps qu'il sera soigné par un médecin, pourra fournir la preuve de son invalidité et subira une perte de revenu. »

Le point de vue d'un déontologue



Un chargé de cours attaché à l'École de dentisterie de l'Université des sciences de la santé de l'Orégon, le Dr Gary Chiodo enseigne la dentisterie en hygiène

publique et représente l'école au Centre de déontologie de l'Université. De plus, il fait partie du comité de travail de

l'Association américaine des écoles de dentisterie chargé de formuler des directives pour les cours portant sur le soin et la gestion des malades atteints d'une infection hématogène.

Le Dr Chiodo a abordé le sujet le plus débattu actuellement en déontologie relativement au SIDA : les droits et les obligations des praticiens contaminés. Suivant le code déontologique de l'Association dentaire américaine (ADA), il est, pour un dentiste, contraire à l'éthique de refuser de traiter un patient uniquement parce qu'il est séropositif. À l'instar de principes semblables formulés par l'Association médicale américaine (AMA), l'Association américaine des infirmiers et d'autres organismes de santé, ce principe établit au-delà de tout doute que le professionnel de la santé est moralement tenu de faire preuve d'un esprit de bienfaisance, d'équité et de sacrifice lorsqu'un patient est séropositif.

Le principe de l'ADA est fondé sur trois points :

1. Dans un cabinet dentaire, le risque de transmission du virus HIV d'un patient à un employé est trop faible pour pouvoir être mesuré.
2. Les séropositifs sont maintenant traités dans la plupart des cabinets.
3. Comme chez les séropositifs le virus HIV peut se manifester d'environ trente façons différentes dans la bouche, ils ont besoin de soins bucco-dentaires.

Après le cas de SIDA déclaré en Floride, l'ADA et les Centers for Disease Control (CDC) d'Atlanta se sont efforcés de définir et de mesurer les risques qu'il peut y avoir au cabinet pour qu'un professionnel dentaire séropositif contamine un patient. L'ADA a conclu après examen que les risques sont « infinitésimaux » alors que les CDC, après toute une série de calculs statistiques, ont estimé que le virus HIV risque de se transmettre une fois sur 263 000 à 2 000 000. Et selon l'AMA, il n'existe aucun cas vérifié de transmission d'un médecin à un patient.

Compte tenu de ces données, l'ADA et l'AMA ont conclu que les praticiens séropositifs qui exécutent des procédures invasives devraient s'abstenir d'exercer ou déclarer leur état à leurs patients afin d'obtenir d'eux un consentement éclairé. Pour sa part, le public alarmé proteste et appuie l'ADA lorsqu'elle demande que les praticiens séropositifs ne doivent traiter personne sans obtenir auparavant un consentement éclairé. Certes, a reconnu le Dr Chiodo, le consentement éclairé entraîne des difficultés et aurait des conséquences sur le plan juridique aux États-Unis. Tout dépend des risques encourus.

Action

Ultracaine (articaine HCl) has been shown to block conduction by interfering with the process fundamental to the generation of the nerve action potential, namely the large transient increase in the permeability of the membrane to sodium ions that is produced by a slight depolarization of the membrane.

Indications

Ultracaine is indicated for infiltration anesthesia and nerve block anesthesia in clinical dentistry.

Contraindications

Ultracaine is contraindicated in patients with a known hypersensitivity to local anesthetics of the amide group; in the presence of sepsis near the proposed injection site; in patients with severe shock; in patients with any degree of heart block; in patients with existing neurologic disease and in patients with severe hypertension.

When **Ultracaine** with epinephrine is used, the caution required of any vasopressor drug is in order.

Warnings

Methemoglobinemia

As with other local anesthetics, **Ultracaine** is capable of producing methemoglobinemia: this has been observed when an intravenous regional anesthesia technique is used. **Ultracaine**, when used as directed in dental procedures, was not associated with methemoglobinemia.

Usage in Pregnancy

Animal studies have not demonstrated teratogenic or embryotoxic effects of **Ultracaine**. However, safe use in pregnant women has not been established. **Ultracaine** is unlikely to be transferred to the mother's milk since it is rapidly decomposed and eliminated.

Precautions

Resuscitative equipment and drugs should be readily available when any local anesthetic is used. The safety and effectiveness of local anesthetics depend upon proper dosage, correct technique, adequate precautions and readiness for emergencies. **Ultracaine** should be used cautiously in persons with known drug allergies or sensitivities, or suspected sensitivity to the amide-type local anesthetics.

Patients with Special Diseases and Conditions

The p-hydroxybenzoic acid methyl ester contained in **Ultracaine**, as a preservative, has a hydroxy group in the para-position. This fact should be borne in mind in the case of patients with para-group allergy.

Adverse Reactions

Reactions to **Ultracaine** are characteristic of those associated with amide-type local anesthetics. A major cause of adverse reactions to this group of drugs is excessive plasma levels, which may be due to overdosage, inadvertent intravascular injection, or slow metabolic degradation. Other causes of reactions to these local anesthetics may be hypersensitivity, idiosyncrasy, or diminished tolerance.

Dosage and Administration

As with all local anesthetics, the dosage varies and depends upon the area to be anesthetized, the vascularity of the tissues, the number of neuronal segments to be blocked, individual tolerance and the technique of anesthesia. The lowest dosage, needed to provide effective anesthesia should be administered.

	Infil- tration	Nerve Block	Oral Surgery
Ultracaine DS forte	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL
Ultracaine DS	0.5-2.5 mL	0.5-3.4 mL	1.0-5.1 mL

It is recommended not to exceed 7 mg/kg body weight in adults.

To date, **Ultracaine** has not been administered to children under 4 years of age, nor in doses greater than 5 mg/kg in children between the ages of 4 and 12.

Supply

Ultracaine D-S: 4% with epinephrine (1/200,000) and **Ultracaine D-S forte:** 4% with epinephrine (1/100,000) are available in 1.7 mL cartridges, box of 50 cartridges.

Product Monograph available on request.

References:

1. Dudkiewicz A, Schwartz S, Laliberté R: Effectiveness of Mandibular Infiltration in Children Using the Local Anesthetic Ultracaine®. *Canadian Dental Association Journal* 1987; Vol 53 (No. 1):29-31.
2. Lemay H et al: Ultracaine in conventional operative dentistry. *Journal of the Canadian Dental Association* 1984; 50 (No. 9):703-708.

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importe autant que la décision même?

Pour résoudre ce genre de problèmes, a enchaîné le D^r Chiodo, la participation du public paraît essentielle afin d'assurer que les décisions prises sont équitables pour tous. Cependant, quand les sentiments prennent le dessus — et dans ce cas, on le sait par expérience, le public peut se montrer déraisonnable et même violent —, les décisions se teintent souvent de préjugés et sont rarement entièrement valables.

Certes, les législateurs doivent sonder l'opinion publique, mais ils ne peuvent fonder leurs décisions sur des sentiments, des on-dit, des craintes ou des préjugés qui sont contraires à la raison. Pareillement, si l'on décide de consulter l'opinion du public sur le degré de risques qu'il juge acceptable, on doit d'abord s'assurer que la réponse qu'il donne se fonde sur la logique et non sur le fait qu'il accepte ou n'accepte pas telle ou telle maladie.

La dentisterie a toujours été une profession morale. Aussi ne doit-on pas plus stigmatiser des gens pour un virus qu'ils peuvent avoir que pour leur religion, leur race ou leur couleur. En 1988, le Conseil de déontologie et des affaires judiciaires de l'AMA a déclaré, touchant la crise du SIDA, que ni les sidéens ni les personnes infectées ne devaient être, de la part de qui que ce soit — et à plus forte raison de la part des professionnels de la santé —, l'objet d'une discrimination fondée sur la peur ou les préjugés. Cette déclaration, a soutenu le D^r Chiodo pour conclure, vaut autant pour les patients que pour les professionnels de la santé.

La conférence de presse

À la fin de la Conférence sur le SIDA et après les délibérations d'un groupe de travail créé pour formuler des recommandations, une conférence de presse a eu lieu. La profession y était représentée par le président de la conférence, le D^r Jim Brookfield, le président de l'ADC, le D^r Gilles Dubé, et le consultant de l'ADC en matière de réduction des risques d'infection, le D^r John Hardie.

L'une des nouvelles les plus encourageantes annoncées à la presse a été la réaffirmation des recommandations faites par l'ADC en 1988 touchant les procédures pour réduire les risques d'infection au cabinet dentaire.

De plus, on a annoncé un plan en sept points afin d'en arriver à une approche plus globale pour étudier les problèmes causés par le virus HIV et les autres agents infectieux dans le milieu dentaire. Le plan vise la protection du public ainsi que celles des droits des professionnels. △

Dans les milieux médicaux, le facteur risques est toujours important pour déterminer s'il convient qu'un praticien fasse une déclaration touchant son état de santé. Lorsque les risques sont minimes ou infinitésimaux, on admet que les déclarer peut inutilement embrouiller les patients inquiets. Aussi les tribunaux américains ont-ils décidé que révéler à un patient tout risque auquel il peut être exposé peut être dangereux, pareille révélation pouvant l'inquiéter et le troubler davantage.

En cardiologie, par exemple, on compte environ un à deux décès par cent cas; le risque est important. En anesthésie générale, on en compte environ un par 10 000 cas; ici aussi, le risque est important. On doit donc en informer une personne avant l'intervention. Par contre, seulement une personne sur un million risque de mourir en prenant de la pénicilline par voie buccale. Dans ce cas, on parle de risques possibles et non de risques importants; on n'en prévient pas le patient de peur de l'inquiéter inutilement et de le voir refuser un médicament qui lui est nécessaire.

Les risques associés actuellement à la transmission du virus HIV d'un praticien à un patient n'ont jamais été considérés importants, que ce soit par les tribunaux ou par les associations qui représentent les professions de la santé. Toutefois, si le public juge que les risques sont beaucoup plus élevés que les CDC, l'AMA, l'ADA et l'ADC le suggèrent, les professions de la santé devront faire beaucoup plus que d'interdire aux praticiens séropositifs d'exercer. Aussi, du point de vue déontologique, les politiques visant les maladies qui peuvent être infectieuses comme l'hépatite B et l'hépatite C, voire les infections virales qui restent à découvrir, doivent-elles être cohérentes.

À tout prendre en effet, il est impossible pour les professions de la santé de donner des soins totalement exempts de risques. Cependant, il serait immoral d'informer les patients sur seulement une maladie qui présente des risques et non sur les autres qui peuvent en présenter davantage, surtout quand entrent en jeu les sentiments, les préjugés et l'incompréhension.

Le D^r Chiodo a également parlé des conséquences qu'il y aurait sur le plan déontologique et des coûts que le public devrait payer si l'on exigeait que les praticiens séropositifs déclarent leur état de santé. Qui, a-t-il demandé, administrerait les tests, qui devrait les subir et quand? Et qui, a-t-il ajouté, décidera de tout ceci quand on sait que, dans les questions de vie ou de mort, prendre une décision



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A Critique of HIV Transmission during Dental Treatment

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Introduction

The possibility of transmission of the Human Immunodeficiency Virus (HIV) to health care workers (HCW) occupationally exposed to infected patients has, understandably, been of concern to dentists and their staff.¹ This subject has recently assumed a different dimension due to the release of information from the Centers for Disease Control (CDC), Atlanta, Georgia, that a dentist may have infected a female patient with HIV when he removed two of her maxillary molars.² Furthermore, in January 1991, the CDC issued a follow-up report indicating that more patients of the now deceased Florida dentist had tested positive for HIV infection.³ Although the CDC does not know for certain how the transmission from dentist to patient(s) occurred, its investigation report implies that the dentist's failure to consistently adopt universal precautions and recommended infection control procedures may have been a significant factor.³ In February 1991, the CDC convened in Atlanta, Georgia to discuss the possible transmission of HIV in the dental office, and the implications (if any) of HIV positive HCWs continuing to practise their professions. Many of the more than 100 presenters at the meeting were of the opinion that rigorous monitoring, refinement, and **enforcement** of present infection control procedures could have prevented the transmission from the dentist to his patients.⁴ Since such monitoring would alter dramatically the practice of dentistry, its effectiveness in preventing HIV transmission must be evaluated before such procedures become mandatory standards of practice. By critically analyzing the CDC's investigation of the dentist, his patients, and his practice, this article will attempt to conduct such an evaluation.

SOMMAIRE

Comme il est possible pour un séropositif ou un sidéen de contaminer un professionnel de la santé, on conçoit très bien que les dentistes et leurs employés éprouvent de l'inquiétude. De leur côté, les patients ont sujet eux aussi de s'inquiéter. En effet, le Centers for Disease Control (CDC) d'Atlanta, en Géorgie, n'a-t-il pas annoncé qu'un dentiste sidéen de la Floride pourrait avoir contaminé une de ses patientes en lui extrayant deux molaires du maxillaire. De plus, en janvier 1991, le CDC a publié un autre rapport selon lequel d'autres patients du même dentiste, qui est maintenant décédé, seraient séropositifs. On ignore comment le virus HIV a pu se transmettre aux patients, mais on sait que le dentiste en question ne prenait pas régulièrement les précautions recommandées ni ne suivait les procédures mondialement reconnues pour réduire les risques d'infection. En février 1991, le CDC a tenu une assemblée à Atlanta pour discuter de la transmission possible du virus HIV dans les cabinets dentaires et, s'il y avait lieu, des conséquences liées à l'exercice de la dentisterie par des professionnels séropositifs. Parmi les quelque cent personnes qui ont pris la parole, nombreux sont ceux qui sont d'avis que le dentiste n'aurait pas transmis le virus aux patients si les actuelles procédures pour réduire les risques d'infection avaient été rigoureusement étudiées, formulées et mises en vigueur. Comme ces procédures pourraient considérablement modifier l'exercice de la dentisterie, il conviendrait, avant de les rendre obligatoires, de s'assurer qu'elles sont efficaces pour prévenir la transmission du virus HIV. Aussi, dans cet article, procède-t-on à un examen critique de l'enquête du CDC sur le dentiste sidéen, ses patients et son cabinet.

The Centers for Disease Control Investigation

Prior to discussing these issues it is necessary to present a brief but comprehensive review of the January 1991 report by the CDC on the transmission of HIV infection during an invasive dental procedure.³

1. Medical History of the Dentist

The involved dentist was known to have high risk behavioral activities for HIV infection and in 1986 was diagnosed as having a symptomatic HIV infection. In September 1987, there was appropriate clinical and laboratory information to confirm the diagnosis of AIDS.³ At this time, antiretroviral (Zidovudine) therapy was started, and apart from a short period in late 1987, was continued until after the practice was closed in 1989. The dentist did develop Kaposi's sarcoma of the palate which was treated by radiation therapy in 1988. There is no evidence to suggest that while he was in practice from 1986 to 1989 the dentist had peripheral neuropathy, dementia, thrombocytopenia or other bleeding disorders, hand dermatitis or injury.³ It was not possible to interview the dentist prior to his death in 1990 on his care of patients.³

2. Investigation of the Dentist's Patients

Admitting the possibility that the initial patient A² may have been infected via dental treatment, the dentist addressed an open letter to his patients. To date, 733 of these patients have been evaluated for the presence of HIV antibody. Four additional patients demonstrate HIV seropositivity: Patient B is an elderly, married woman with no known risk factors;³ Patient C is a young male who admits to numerous heterosexual partners and nonintravenous drug abuse but

no other high risk activities;³ Patient D is a man with AIDS who has accepted risk factors;³ and Patient E is a woman whose laboratory and epidemiologic studies have not been completed. For the purpose of this report, future references to the dentist's patients will be confined to three individuals, i.e. Patient A (the initial one) and Patients B and C. Patient A, a young single female, has AIDS but has tested negative for syphilis and hepatitis B. She has no history of intravenous drug abuse or blood transfusions, and denies behavioral or other risk factors associated with HIV transmission.² Patients B and C have tested negative for syphilis and hepatitis B, while their known sexual partners are HIV antibody negative. Both patients deny being sexually involved with each other or with the infected dentist.³ Presently both patients are asymptomatic for HIV disease but have laboratory evidence of immunosuppression.

Patient A had six dental visits during the period of November 1987 to June 1989 for procedures including extractions, prophylaxis, and cosmetic bonding.³ Patient B had 21 dental visits between December 1987 and July 1989 for treatment including extractions, prophylaxis, periodontal scaling, root planing and fixed plus removable prosthodontics.³ Patient C had 14 visits between December 1984 and May 1989 for extractions, periodontal scaling, root planing and restorations.³

All three patients had invasive procedures performed by the dentist after he had been diagnosed as having AIDS. Patients B and C had multiple invasive procedures performed, and patients A and B received invasive treatments while the dentist was not taking antiretroviral therapy (Zidovudine). In 1987, Patient A had two maxillary molars removed on the same day that Patient B was examined for a toothache. On a similar day in 1989, Patients B and C had prophylaxis performed, but this may have been done by the dental hygienist rather than the dentist.³

3. The Dental Practice and Infection Control Measures

The 14 office employees of the dentist were medically investigated and interviewed regarding infection control and other work practices. Eight have been tested for HIV antibody and all were negative including the hygienist who may have performed the prophylaxis on Patients A, B, and C.³ No written policy or training course for infection control principles or practices were provided for the staff by the dentist. However, barrier

precautions were introduced into the practice in early 1987, and the whole dental team wore gloves and masks for patient-care activities. Whereas the gloves were changed and hands washed between most patient contacts, on some occasions gloves were washed rather than changed between patients. Masks were renewed infrequently.³ By 1987, all surgical instruments were autoclaved. Non-surgical heat tolerant items such as mirrors were immersed in disinfectants for varying periods of time, but were autoclaved when time and instrument supply permitted. Handpieces, prophylaxis angles, and air/water syringe tips were not autoclaved but disinfected with alcohol wipes or immersed in disinfectants for varying periods, as were disposable saliva ejectors and prophylaxis cups which were reused on occasion. The disinfectants available in the office were isopropyl alcohol and 2% glutaraldehyde.³ Local anaesthetic syringe needles were recapped by the dentist and the assistant using a two-handed technique without a needle resheathing device. None of the HIV seropositive patients recalled nor did the dental records reveal any incidents that would have exposed them to the dentist's blood; however, no log of such injuries was maintained. Interestingly, an employee who was injured while washing a sharp instrument remains HIV negative.³

4. Virological Investigation

DNA sequence analysis of the HIV strains isolated from three patients (A, B and C) indicated a degree of similarity — to each other and to the viral strain obtained from the dentist — sufficient for CDC to conclude that all four viral strains (i.e. from patients A, B and C plus the dentist), were epidemiologically related. Furthermore, CDC have stated that DNA sequencing studies have demonstrated that the four strains are unrelated to the strains from Patient D (who has AIDS), seven control patients living within 90 miles of the practice, and 21 other North American HIV isolates.³

5. CDC Conclusions

The CDC state³ that based upon their investigation, at least three of the patients of the dentist with AIDS were infected with HIV during his treatment of their dental needs. The main reasons offered for this conclusion are:

- the three patients had no other confirmed exposure to HIV;
- all three patients had invasive procedures performed by an HIV-infected dentist;

- the DNA sequence analysis is consistent with epidemiologically linked strains of HIV.

The CDC admit³ to not knowing how the transmission to the patients may have occurred, but do indicate the following possible routes of transmission:

- needlestick or similar injury permitting the dentist's HIV positive blood to contaminate an open oral wound or non-intact mucous membrane of a patient;
- the inconsistent use of barrier techniques (i.e. gloves) by the dentist;
- inadequate infection control methods which may have allowed transmission from instruments or equipment previously contaminated by the dentist's blood or the blood of an already infected patient.

Quantifying the Risk of Transmission

Prior to analyzing the significance of the dentist's infection control habits vis-à-vis possible transmission of HIV to his patients, it is worthwhile to establish the risk of such an event occurring.

There is minimal information or substantiation to date, to assess the frequency of seroconversion after exposure to HIV in a clinical environment either from patient to dentist or vice-versa. Prospective studies have indicated that the risk of HIV transmission to a HCW due to a single occupational percutaneous exposure to HIV infected blood is 0.3% — i.e. one in 333.⁴ A recent Canadian study has suggested that the risk of HIV seroconversion after a needlestick injury is less than 0.5% or one in 200.⁵ Although the risk of transmission of HIV from an infected HCW to a patient has not been extensively studied, a preliminary report issued by the CDC states that the probability of HIV passing from a positive surgeon to a patient ranges from 0.0024% (one in 41,667) to 0.00024% (one in 416,667).⁴ Another investigator has suggested that the probability of such transmission varies from one in 100,000 to one in 1,000,000 procedures.⁶ The CDC⁴ admit that "similar estimates for dental workers (i.e. oral surgeons, dentists, dental hygienists) are hampered by the lack of prospective studies of the frequency of percutaneous injuries in these workers and the per cent of such injuries which result in possible exposure of a patient to the worker's blood. In the absence of such studies, it is difficult to estimate the risk to a patient of undergoing an invasive procedure by an HIV-infected dental worker. Available

data permit only an indirect estimate.” Nevertheless, the CDC⁴ have estimated that the risk to a patient during a dental procedure involving potential blood exposure, performed by an HIV-infected dentist, is one in 263,158 to one in 2,631,579. Interestingly, the American Dental Association (ADA) has calculated that the probability of this route of transmission is 0.0001% or one in 1,000,000.⁷ It must be emphasized that these calculations are estimates based upon percutaneous (mainly needlestick) injuries. They do not pertain to possible transmission from infected blood contacting mucous membranes and skin. Three cases have been reported of HIV seroconversions after exposure of non-intact skin to HIV infected blood, but there are no reports of HIV transmission occurring through intact skin or mucous membranes.⁵

The paucity of data — which is admittedly difficult to obtain — imparts a certain futility on attempts to mathematically quantify the rate of HIV transmission in health care settings. Perhaps the most apt comment on this possibility has been offered by Chai Feldblum⁸ of the American Civil Liberties Union Foundation, who stated that “. . . The reality of the situation (is) that the actual risk of transmission of HIV from a health care worker to a patient is staggeringly infinitesimal.” Consequently, it must be emphasized that while the degree of risk ought not to be deemed zero, dental practice is an unlikely environment for the transmission of HIV infection.

HIV and AIDS

Although the majority of the scientific community has accepted that HIV is the cause of AIDS, a small minority of virologists, physicians, journalists, and AIDS activists have expressed doubts that HIV is the sole or the most significant etiologic factor.⁹ Recently, Dr. L. Montagnier,¹⁰ who first identified HIV, has indicated that a mycoplasmal co-infection must act synergistically with HIV to produce fully developed AIDS. Other researchers have suggested that HIV is itself an opportunistic infection that invades an already immunosuppressed patient along with other diseases typical of the syndrome.¹⁰ In other words, HIV is a marker of immunodeficiency but — according to such a hypothesis — not necessarily the cause of the deficient state. This article is not an appropriate place for debating whether HIV is or is not the cause of AIDS. However, it is feasible that — until HIV is shown to reproduce AIDS in an experimental animal and until current prospective studies demonstrate that all

persons infected with HIV develop AIDS — this debate will remain unresolved.¹¹ Consequently, it may be premature for authoritative bodies such as the CDC to base policies solely upon the HIV status of HCWs, including dentists, when other factors such as active viral or microbial infections, chronic drug use, and malnutrition may play contributory roles in the acquisition of AIDS.¹²

An Analysis of Possible Routes of Transmission and their Prevention

1. Direct Transmission from the Dentist's Blood

The results of the laboratory and virological investigations indicated a close similarity between the HIV strain present in the infected dentist and that present in patients A, B, and C. The CDC have relied upon relatively new and very sophisticated technical procedures to justify the opinion that the dentist's blood was the source of the patients' infection with direct blood to blood contamination being the most likely route of transmission.³ The CDC offer four methods by which this might have occurred:

- needlestick (i.e. percutaneous) injuries during local anaesthetic administration;
- needlestick injuries during recapping procedures;
- percutaneous injuries from suture needles;
- cuts from sharp objects.

These possibilities have been suggested by the CDC while they admit to not knowing either the frequency of such injuries to dental personnel or the proportion of such injuries which result in possible exposure of a patient to the worker's blood.⁴ Indeed, there have been no scientifically controlled studies to demonstrate what parameters must be present to permit transmission of an infectious agent from dentist to patient via a needlestick injury. In developing their risk assessment model CDC made three assumptions:⁴

- the HCW will suffer a percutaneous injury during a procedure;
- the sharp object causing the injury will recontact the patient's open wound;
- infection transmission to the patient will occur after such an exposure.

However, no attempt has been made to analyze the injury with regard to:

- amount of donor blood lost and its flow rate;
- the inoculating dose and pathogenicity of the virus in the donor's blood;
- the presence or absence of suctioning

- during invasive oral procedures;
- the size and nature of the recipient wound site, and whether or not it has active blood flow;
- the presence or absence of recipient salivary antibodies or antiviral agents;
- the susceptibility of the recipient to the virus being transmitted.

Such factors are deemed important in the transmission of infectious disease via a percutaneous injury to an uninfected patient. Until their critical significance is appreciated utilizing acceptable scientific techniques, this route of transmission of HIV must be considered only as a theoretical one in the practice of dentistry. Credence for this latter concept is provided by a study of 2,160 patients treated by a general surgeon who died of AIDS in January 1989.¹³ Two hundred and sixty-four of his patients had died, but not of AIDS, and no case of AIDS had been recorded in 1,652 of those patients contacted. One third tested negative for HIV with only one I.V. drug abuser testing positive. Since the HIV infected dentist in all probability had fewer percutaneous injuries in a less bloody field than the surgeon, it is highly likely that the third and fourth methods of injury identified by the CDC did not occur in the dentist's practice. Similarly, the second method of injury (i.e. needlestick) is suspect since it would not have infected the patients but the dentist and/or the dental assistants. A further reason to discount this method is the fact that none of the staff members tested to date for HIV have tested positive.

Finally, although the dentist admitted to needlestick injuries, it is not known whether they occurred:

- while treating the involved patients;
- before or after administering local anaesthetics;
- with or without aspiration;
- with or without significant blood loss (i.e. gloves tend to contain the operator's blood and prevent patient exposure);
- with or without the presence of significant oral wounds.

It is suggested that these factors play a role that is not yet identified in the transmission of HIV.

It is evident from the foregoing that little is known about the scientific criteria which operate during percutaneous transmission of HIV infection from an infected dentist to patients. Further, there are no specific details concerning such injuries which might have occurred in the practice under investigation. Indeed, denials concerning the presence of dentist to patient

blood contact have been received by the dentist, his staff, and the infected patients. Consequently, it is submitted that the CDC conclusion that the transmissions might have occurred via a percutaneous injury during dental treatment must be judged and assessed as simply a hypothesis which requires scientific validation before it is deemed a possibility.

2. Indirect Transmission from the Dentist's Blood

There are two methods by which this route might have operated.

The first is dependent upon the fact that fluid secretions from weeping wounds on the hands or fingers of HCWs are a potential source of cross contamination. Indeed, it is accepted that it is by this route that a dental hygienist transmitted the herpes simplex virus to a number of her patients.¹⁴ In the case of HIV positive dentist, there is no evidence that he had such lesions or suffered from cutaneous diseases of the hands or fingers. Therefore, it is a reasonable assumption that this indirect route of transmission did not occur.

The second indirect route is from instruments contaminated by the dentist's blood being used to perform invasive procedures or infect already existing patient oral wounds. As stated previously, the criteria which must be satisfied for contaminated dental instruments to induce infectious disease are not known. However, since HIV readily loses its pathogenicity when removed from its usual environment, it is not illogical to reason that one parameter for this route of transmission would be the visible presence of some of the dentist's fresh blood on the instrument. Neither the staff nor the patients are aware of such an occurrence. Adverse criticism has been directed towards the use of "cold" sterilants by the dental staff — the inference being that inadequate cleaning and decontamination of instruments harboring HIV from the dentist could be a route for infecting subsequent patients. This assumes that such a mode of transmission does occur. To date, there is no documented evidence to indicate that contaminated handpieces, prophylaxis cups, mirrors and cups are a source of cross-contamination in the dental office. In addition, it must be remembered that HIV is accepted as a fragile virus¹⁵ which is readily destroyed by drying, heat and most disinfectants. In consideration of these facts, it is highly unlikely that the infection control techniques employed in the practice contributed to indirect transmission from the dentist's blood. Finally,

it is a revealing observation that by 1987 the dental staff were adhering to infection control standards equal to if not better than those practised in most dental offices. Yet no other instances of HIV infection have been reported during 1981-1990 from the practices of more than 1,200⁴ U.S. dentists with HIV infection or AIDS. This suggests that there is minimal if any scientific vindication to justify the indirect route of transmission as being anything other than a suggestion.

3. Prevention of Transmission

In a recent document⁴ the CDC state that, "When appropriate barrier precautions (i.e. gloves, masks etc.) are utilized, and recommended sterilization and disinfection procedures are followed, most remaining cases of HIV and HBV transmission in health care settings are likely to result from percutaneous injuries to HCWs." This implies that barrier precautions along with appropriate sterilizing and disinfecting techniques are the most effective methods of preventing HIV or HBV transmission during medical, surgical or dental treatment. It must be stressed, however, that these techniques have two major objectives:

- protection of HCWs from a patient's infected body fluids.
- reduction of cross-contamination between patients.

They will not prevent percutaneous injuries (such as needlesticks) which the CDC³ deem to be the most likely reason for HIV transmission from dentist to susceptible patient. Nevertheless, at a recent meeting, the CDC and numerous delegates advocated the enforcement of barrier precautions combined with sterilization and disinfection protocols to avoid additional transmission from infected HCWs to patients.⁶ It is therefore appropriate to review the effectiveness of such precautions and infection control techniques.

The barrier precautions referred to above are part of the universal precautions disseminated by the CDC in 1987 and 1988 to protect the skin and mucous membranes of HCWs from potential contact with blood and other body fluids infected with HIV. (The term "universal" indicates that the barriers should be applied to all patients and not just those with HIV infection or AIDS.) Whereas there is some evidence to support the contention that barrier precautions such as gloves may prevent transmission of at least some infectious diseases from patients to dentists, there is no data which indicate that wearing gloves would prevent HIV transmission from dentists

to patients. However, in a worst case scenario, HIV transmission may occur if the infected dentist suffers from gaping wounds or skin erosions which may serve as portals of virus release into a patient's oral cavity within which there were similar wounds to serve as portals of virus entry. Nonetheless, according to the CDC report,³ the infected dentist did not suffer from any dermatological conditions; hence their inference that the dentist's failure to adopt barrier techniques for every patient could have been significant in the transmission of HIV appears to be unfounded.

As a result of the CDC recommendations, it has become commonplace for hospital staff to wear gowns, gloves and masks even for the most casual contact with patients.⁵ These habits have been adopted by some dental workers who tend to wear such paraphernalia all day long — with tremendous increases in practice overheads — while demonstrating ignorance of why and when such barriers should be worn. It must be remembered that HIV transmission does not occur via casual contact but from direct sexual relations or exposure to infected blood. Therefore, since the former is not within the province of dentistry, barrier precautions should only be used when dental personnel are exposed to blood and saliva, when the barriers are assumed to be effective in the prevention of the transmission from patient to dental staff of blood-borne diseases especially hepatitis B.

As previously stated, adverse criticism has been levelled against the HIV infected dentist for not having a written policy for reprocessing dental instruments³ — the inference being that such a policy would have been of some significance in the prevention of the alleged transmissions. This is somewhat analogous to the suggestion that once a law is passed it will never be violated. This only occurs if the law is strictly policed. Enforcement of infection control techniques in dental practices would be both labor intensive and expensive, but perhaps not cost effective. A recent major U.S. study¹⁷ has demonstrated that many of the commonly used disinfectants are not effective and that Environmental Protection Agency approval (which is deemed to be a gold standard for disinfectants) is based upon questionable criteria. If this is appreciated and coupled with the fact that there have been few studies epidemiologically linking outbreaks of infectious diseases to dental offices, it is possible that the significance of disinfectants in dental practice has been exaggerated. There-

fore, until the true role and effectiveness of disinfectants in dentistry are established by acceptable, reproducible scientific methods, it is unfair to suggest that an improvement in the apparent lax infection control techniques would have prevented the HIV transmission.

Authorities such as the CDC have emphasized that acceptance and enforcement of universal precautions and rigid infection control techniques are essential for the prevention of transmission of HIV from infected health care workers to patients. As demonstrated by the above information, such actions appear to be based upon accepted dogma which has not been subject to scientific scrutiny.

Conclusions

The CDC have generated much interest in the possibility of HIV transmission occurring during dental treatment. In turn, this has created an intense debate on whether or not the professional practices of HIV-infected health care workers should be restricted to avoid transmission to patients. This argument involves professional, moral, and ethical issues and also demonstrates an awareness of well-defined legal principles pertaining to both the patient and the health care practitioner. No doubt, the CDC will be cognizant of these issues prior to making any

alterations to their current recommendations on HIV-infected health care workers. However, such changes also must reflect the pertinence of the scientific facts which accompany this alleged transmission.

The CDC have employed sophisticated DNA sequencing analysis to link the HIV infection of three patients to the blood of their dentist. While most authorities have no reason to doubt the validity of such techniques, it is justified to question the control group used in the virological examination. Why, for instance, were the controls not from the community in which the practice was located and from individuals who had no apparent high risk activities vis-à-vis HIV transmission? Thus, while the laboratory findings are not subject to dispute, the CDC's interpretation of them may be questioned.

The CDC have no knowledge of how the transmission from dentist to patient did occur, but have suggested that percutaneous injuries to the dentist and breaks in accepted infection control practices may have been significant causative factors whose prevention would avoid future transmissions. The above analysis has demonstrated that until more investigations of these potential routes of transmission are undertaken, their significance in causing HIV transmission from dentist to patient is based upon a questionable scientific foundation. This suggests that

any regulations which enforce universal precautions and infection control protocols with the purpose of reducing the already minuscule risk of HIV transmission from dentist to patient would be not only expensive but in all probability entirely cost-ineffective. It is hoped that the Centers for Disease Control and dental regulatory authorities will consider these facts before making any substantive changes in their policies regarding HIV-infected dental personnel and infection control techniques.

It must be reiterated that the foregoing is a specific critique of the alleged HIV transmission episodes from a dentist to his patients. As such, the analysis must not be construed as suggesting that the universal precautions currently practised in dentistry to obviate transmission of infectious diseases should be discontinued. On the contrary, a definite standard for current dental practice should include the use of universal precautions. However, their use must be moulded and built upon a foundation of common sense, knowledge, and understanding of the nature and spread of infectious diseases. Δ

Reprint requests to: Dr. J. Hardie, Department of Dentistry, Vancouver General Hospital, 855 West 12th Avenue, Vancouver, British Columbia V5Z 1M9.

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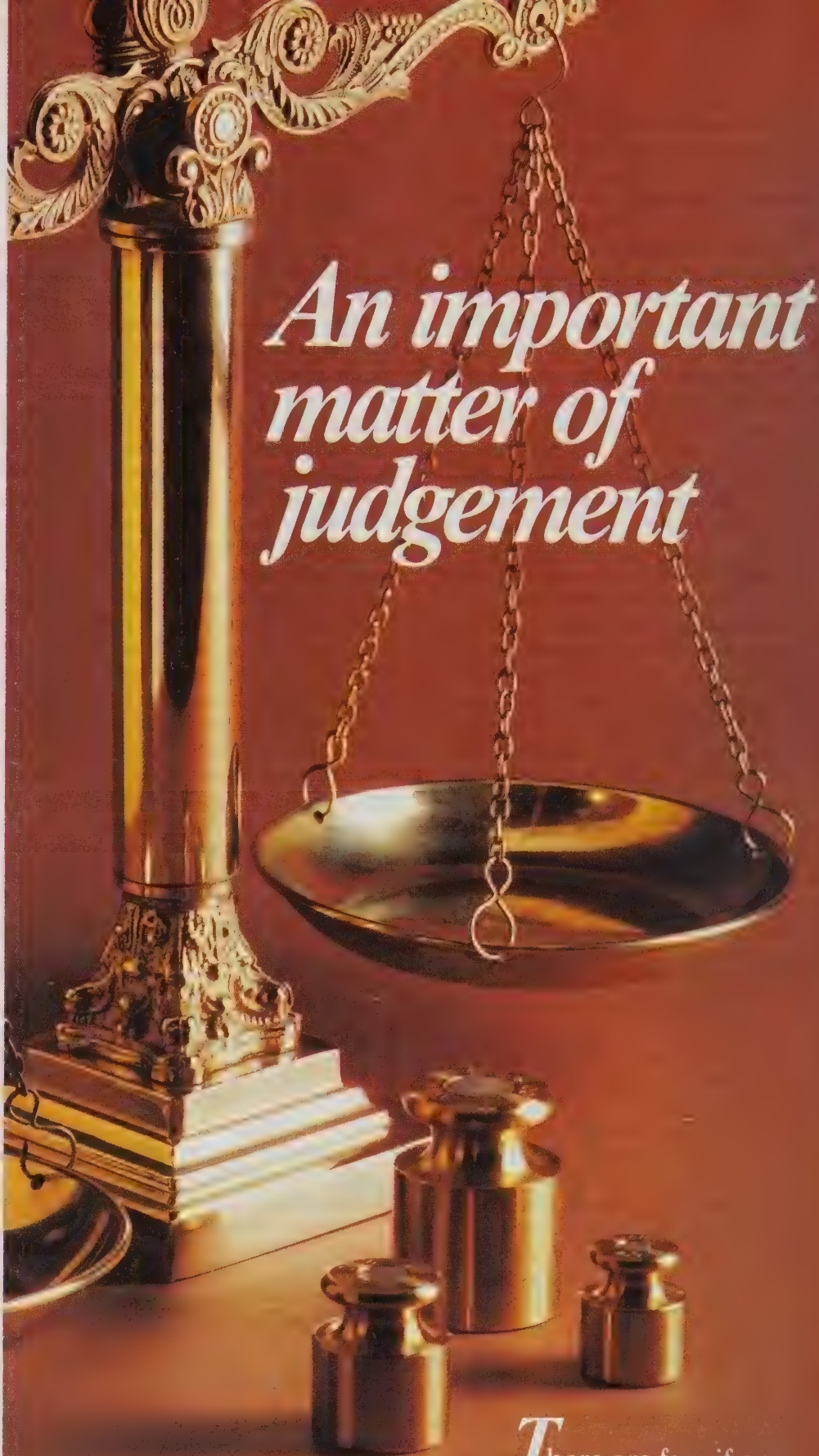
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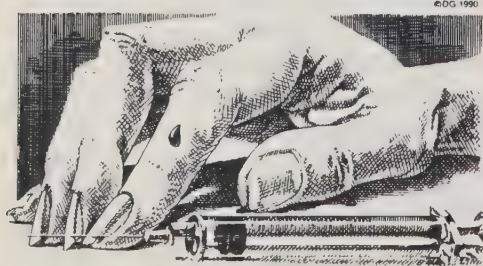
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An important matter of judgement

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ACETAMINOPHEN		ASA	OTC IBUPROFEN (200mg)
AT LABEL DOSAGE			
EFFICACY			
equipotent with ASA	ANALGESIC	equipotent with acetaminophen	approximately equipotent (200 mg standard dosage unit) vs 650 mg acetaminophen or ASA
equipotent with ASA	ANTIPYRETIC	equipotent with acetaminophen	approximately equipotent (200 mg standard dosage unit) vs 650 mg acetaminophen or ASA
not indicated	ANTI-INFLAMMATORY	required dosage generally exceeds analgesic/antipyretic levels and sustained administration is necessary to achieve serum levels required for anti-inflammatory effect	required dosage generally exceeds analgesic/antipyretic levels and sustained administration is necessary for anti-inflammatory effect
SAFETY			
rare hypersensitivity, GI irritation rarely occurs	ADVERSE EFFECTS	GI bleeding or ulceration, nausea, vomiting, diarrhea, vertigo, tinnitus, hearing loss, pruritus, urticaria, angio-edema, anaphylaxis	epigastric pain, heartburn, nausea, dizziness, GI bleeding and hypersensitivity reactions
slight increase in prothrombin time for patients on oral anti-coagulants but generally clinically insignificant	PRECAUTIONS	history of GI ulcerations, bleeding tendencies, anemia or hypoprothrombinemia; patients with asthma or other allergic conditions; concomitant use with anti-coagulants, uricosurics, other non-narcotic analgesics, hypoglycemics, alcohol, methotrexate	cardiovascular disease involving fluid retention, bleeding disorders, kidney or liver disease
hypersensitivity to acetaminophen	CONTRAINDICATIONS	salicylate sensitivity, active peptic ulcer	peptic ulcer disease, sensitivity to ibuprofen, ASA or other NSAIDs
no known risk	IN PREGNANCY	salicylates interfere with maternal and infant blood clotting and may lengthen duration of pregnancy and parturition; administration during last trimester should be avoided	safety not established in pregnancy and nursing mothers
no age restriction	IN CHILDREN	specific risk of intoxication using therapeutic dosage in febrile and dehydrated children; association with Reye's Syndrome	not to be used in children under 12 years
hepatotoxicity may occur with overdose	HEPATIC TOXICITY	reversible hepatotoxicity in apparent risk groups at high dosage	elevated liver enzymes, jaundice, hepatitis (rare)
no direct association	ANALGESIC NEPHROPATHY	no direct association	no direct association
no known association	RENAL TOXICITY	no known association	reversible renal impairment in predisposed patients
oral anticoagulants (as above) chloramphenicol (increased half life)	DRUG-DRUG INTERACTIONS	oral anticoagulants, uricosurics, non-steroidal anti-inflammatory agents, oral hypoglycemics, corticosteroids, ethyl alcohol, methotrexate	ASA or other NSAIDs, coumarin type anticoagulants, diuretics
ACUTE OVERDOSE			
potentially serious	CLINICAL RISK	potentially serious	potentially serious
supportive management and/or specific antidote (N-acetylcysteine)	TREATMENT	supportive management—no specific antidote	supportive management—no specific antidote

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American Heart Association Updates Recommendations for Prevention of Infective Endocarditis

Preamble by P. Michele Williams, BSN, DMD
Joel B. Epstein, DMD, MSD

The American Heart Association (AHA) has updated its recommendations for prevention of infective endocarditis.¹ Effects of antibiotic prophylaxis are still being reviewed and may lead to further guideline revisions.^{2,3} The recommendations have been accepted by the Council on Dental Therapeutics of the American Dental Association, as they relate to dentistry. These changes affect all dental practitioners and should therefore be conveyed to readers of the *Journal*.

Dental diseases and their treatment have been implicated in the development of infective endocarditis. Dental and oral surgical procedures have been shown to produce transient bacteremias that contain the microbes commonly isolated in patients with infective endocarditis.⁴ The microorganisms circulate in the bloodstream and seed abnormal endothelial surfaces such as damaged or abnormal heart valves, congenital heart defects or prosthetic heart valves. The initial characteristic lesion is non-bacterial, consisting of platelets and fibrin. It can result in non-bacterial thrombotic endocarditis (NBTE).⁵ When a bacteremia occurs, certain microorganisms adhere to the thrombus converting it into the typical vegetation of infective endocarditis. This vegetation is again covered with platelets and fibrin thereby protecting the site from penetration by phagocytic cells.⁶

Infective endocarditis is fatal if left untreated. Systemically, embolization of the friable vegetation may occur. The emboli travel via the circulation and may lodge in the brain, spleen, kidney, gastrointestinal tract, heart or extremities resulting in infarction or abscess formation. Locally, an enlarging vegetation can cause damage to the heart that may include destruction of heart valves and associated structures, stenosis, abscess formation or loss of a prosthetic valve. If successfully treated, scarring occurs leaving the heart susceptible to reinfection.^{6,7,8}

Prophylactic antibiotics are recommended for individuals at risk of develop-

ing infective endocarditis. The antibiotics are given prior to procedures known to produce bacteremias. In dentistry, prophylaxis is recommended when dental procedures are known to produce oral or gingival bleeding. Prophylaxis is not recommended for injection of local anesthetic, except intraligamentary injections. It is not recommended for shedding of primary teeth.^{1,9,10}

It is recognized that poor oral hygiene and periodontal or periapical infections may result in bacteremia in the absence of dental procedures. Therefore, individuals at risk should establish and maintain good oral health to reduce the potential for bacteremia from these sources. Prior to dental or oral surgical procedures, local degerming with chlorhexidine or povidone iodine (10%) have been shown to reduce the incidence of bacteremias and the size of the bacterial inoculum. Chlorhexidine and povidone iodine may be used as an adjunct to antibiotic prophylaxis.^{9,11,12}

Endocarditis prophylaxis is recommended for the following conditions:

- prosthetic heart valves;
- individuals who have had infective endocarditis;
- most congenital cardiac malformations;
- rheumatic and other acquired valvular defects;
- hypertrophic cardiomyopathy;
- mitral valve prolapse with valvular regurgitation.¹

Endocarditis prophylaxis is **not** recommended for the following conditions:

- isolated atrial septal defects;
- surgically repaired atrial septal defects;
- ventricular septal defects or patent ductus arteriosus beyond six months;
- previous coronary artery bypass surgery;
- mitral valve prolapse without regurgitation;
- physiologic or functional heart murmurs;
- Kawasaki disease without valvular regurgitation;

- rheumatic fever without valvular dysfunction;
- cardiac pacemakers.¹

Amoxicillin is now the drug of choice for standard endocarditis prophylaxis in individuals not allergic to penicillin (**Table I**). Penicillin V, ampicillin and amoxicillin are considered equally effective, *in vitro*, against streptococci viridans. However, amoxicillin is now preferred because it is better absorbed from oral dosing and results in higher serum drug levels. Individuals allergic to penicillins should be given erythromycin. If they are intolerant of either penicillins or erythromycin, clindamycin is a recommended alternative.¹ When prescribing erythromycin, erythromycin succinate and erythromycin stearate are recommended because of more rapid and reliable absorption and thus more sustained serum levels.¹

Individuals considered at high risk for developing endocarditis include those with prosthetic heart valves, a previous history of endocarditis or a surgically constructed systemic pulmonary shunt. Previous AHA recommendations emphasized the use of strict parenteral antibiotic regimens. The updated regimen recommends use of the standard prophylactic regimen (amoxicillin) in high risk patients, including those individuals with prosthetic valves. The AHA states that the standard oral regimen has been used on high risk individuals in other countries and has not resulted in significant failure. The oral regimen may therefore be adequate. The AHA recognizes that some practitioners will prefer to use an intensified (parenteral) regimen in high risk patients.^{1,6,8} (**Table II**).

Prophylaxis of infective endocarditis is most effective when adequate serum antibiotic levels are present during the dental procedure and for a short period after treatment. Extended use of the antibiotics should be avoided to reduce the risk of microbial resistance. For the same reason, an interval of seven days should be observed between a series of

Recommended Antibiotic Regimen to Prevent Infective Endocarditis – 1991

Table 1
Standard Regimen for Patients at Risk

1. For Most Patients:

Amoxicillin – 3.0 g orally 1 hour before and then 1.5 g 6 hours after initial dose.

2. For patients allergic to penicillin:

Erythromycin – ethyl succinate 800 mg or erythromycin stearate 1.0 g orally 2 hours before procedure and $\frac{1}{2}$ dose 6 hours after initial dose.

– OR –

Clindamycin – 300 mg orally 1 hour before procedure and 150 mg 6 hours after initial dose.

Table II
Alternate Regimens for Patients at Risk

1. For most patients unable to take oral medications:

Ampicillin – 2.0 g IV (or IM) 30 min. before procedure then ampicillin 1.0 g IV (or IM) OR amoxicillin 1.5 g orally 6 hours after initial dose.

2. For patients allergic to penicillins and unable to take oral medications:

Clindamycin – 300 mg IV 30 min. before procedure and 150 mg IV (or orally) 6 hours after initial dose.

3. For patients at high risk who are not candidates for the standard regimen:

Ampicillin – 2.0 g IV (or IM) plus gentamicin 1.5 mg/kg IV (or IM); (not to exceed 80 mg) 30 min. before procedure and amoxicillin 1.5 g orally 6 hours later or the parenteral regimen may be repeated 8 hours after initial dose.

4. For patients at high risk who are allergic to penicillins:

Vancomycin – 1.0 g IV administered over 1 hour starting 1 hour before the procedure. No repeat dose is necessary.

Table III
Pediatric dosages

Listed below are the **initial** pediatric dosages. Follow-up doses should be $\frac{1}{2}$ the initial dose. Total pediatric dose should not exceed total adult dose.

Amoxicillin	50 mg/kg
Clindamycin	10 mg/kg
Erythromycin ethyl succinate	20 mg/kg
Erythromycin stearate	20 mg/kg
Ampicillin	50 mg/kg
Gentamicin	2.0 mg/kg
Vancomycin	20 mg/kg ⁵

dental procedures when prophylaxis is required.¹¹

The A.H.A. recommendations for the prevention of infective endocarditis are the recognized standard of care. It is incumbent upon all dental practitioners to be current and compliant with the accepted antibiotic regimens for the prevention of infective endocarditis. Δ

(Both Dr. Williams and Dr. Epstein are associated with University of British Columbia, British Columbia Cancer Agency and Shaughnesay and St. Paul's Hospitals)

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Electronic Dental Anaesthesia

P. Ralph Crawford, BA, DMD

The Journal, in a continuing series of general articles on products, innovations and techniques, investigates the use of electricity in anaesthesia. What follows is not based on scientific research per se, but reflects the opinion of the author after a review of some of the literature, a visit to an office where electronic anaesthesia is being used, and through interviewing dentists familiar with the technique.

The Journal does not endorse any particular device or technique mentioned in the article.

The use of electricity as a therapeutic or pain-decreasing mechanism is not new. In fact, a paper published in the June 1987 *Journal Of the California Dental Association*, by Dr. Stanley F. Malamed and Dr. Charles Joseph, outlines a history going back to the time of Socrates.

It is known, for example, that Scribonius Largus, the personal physician to Claudius, the Roman Emperor, described how the pain from arthritis and chronic headaches could be relieved by standing in water inhabited by live electric rays or "black torpedo fish." Malamed and Joseph then trace the medicinal use of electricity by the physicians Avicenna and Averrhoes in the middle ages, and the use of crude electrostatic generators and Leyden jar condensers in the 18th century. (Apparently, the English evangelist-preacher, Reverend John Wesley, 1703-91, was one of the earliest electrotherapists.) By the 19th century, "electropuncture," a combination of electricity and oriental acupuncture, was also receiving considerable recognition.

Electricity in Dentistry

The first known report describing the use of electricity in dentistry was penned in 1770 by James Ferguson. In 1786, similar work was undertaken by l'Abbe Bertholon, who used electrical shocks produced by an electrostatic generator to cure toothache. Later, in 1824, Charles Bew, the personal surgeon-dentist to



Dr. Allan Reiss, Toronto, prepares the H-Wave apparatus.



Dr. Reiss explaining EDA to the patient and how she may control her own pain threshold.



Deep scaling without pain.

King George IV of England, treated tic douloureux by applying electrical shocks generated by twin electrodes, which were attached to the patient's face.

By the middle of the 19th century, a method of painless (or less painful) tooth extraction was advocated by a number of dentists. Their technique consisted of attaching a negative electrical

lead from an induction coil to one end of a forceps, while the positive electrode was held in the patient's hand. In 1890 there was even a home-use magneto developed for curing toothache.

Malamed and Joseph conclude their paper by stating, "As in medicine, the application of electrotherapy for dental procedures appeared to have waned

in the first half of the 20th century. Sporadically, 'new' electric devices have appeared, only to fall quickly into the expanding collection of unwanted fad items which all health professionals seem to collect with amazing ease. The recent reintroduction of TENS (Transcutaneous Electric Nerve Stimulation) for use in dentistry has occurred at a time of heightened interest in the use of electricity as a therapeutic agent in the health professions. Time will tell if this represents just another fad that will die out once again only to reappear at some other time in the future, or if the technique will prove itself valuable enough to gain a strong foothold as an essential element in the dental armamentarium for pain control."

ADA Status Report

In November 1987 the American Dental Association (ADA) issued a status report on TENS. Some excerpts indicate that ADA considered the technique to have potential, but that it had not yet been perfected.

"Among factors cited for influencing TENS performance are training, proper usage, and patient selection involving psychological screening.

"A recent report of a high-frequency neural modular (HFNM), different from TENS in current and frequency, showed an 80% success rate among patients receiving no local anaesthesia in dental procedures.

"Variability in individual use and difficulty in standardization of instruments make available scientific information on pain control using TENS units in dentistry inadequate for evaluation of this technique."

The ADA view was similar to that of Clinical Research Associates, which in its May 1989 newsletter, stated:

"CRA has continued to evaluate TENS units for several years (February '87 and February '85 CRA newsletters). About 50% of patients using TENS can tolerate normal restorative procedures without injection of local anaesthetic, and up to 90% do not need local anaesthetic when TENS is augmented with nitrous oxide. Over 90% of patients having muscular problems related to TMJ dysfunction were relieved by TENS."

Although the TENS technique has not, in Malamed and Joseph's eyes, "gained a strong foothold as an essential element in the dental armamentarium for pain control," it has attracted the interest of many practitioners, possibly because of an increased activity in the marketplace. A Canadian company, **H-Wave Canada**,

has been advertising its TENS product extensively and exhibiting at conventions. A recent brochure from a European company, **Equinox International Ltd.**, proclaims boldly in large letters, "How to anaesthetize all the teeth in 30 seconds."

Dr. Allan Reiss

To learn more about electronic dental anaesthesia (EDA), the *Journal* visited the office of Dr. Allan Reiss in downtown Toronto. Dr. Reiss, a 1983 graduate of the University of Western Ontario, is the president of **H-Wave Products**. In the past several years, his company has sold over 60 units, mainly in Ontario, British Columbia and Quebec.

During our visit, a patient scheduled for deep periodontal scaling was connected to the EDA machine by Dr. Reiss, who attached electrodes to the candidate's buccal mucosa with an adhesive. (The placement of the leads depends upon the location of the impending dental procedure.)

The patient held a control unit in his hand, and was instructed to turn the power control dial gradually to about the two o'clock position. Dr. Reiss explained that a tingling sensation would be felt in the area where the electrodes were attached, and instructed the patient to turn the dial back for a moment or two if this was too intense.

In Dr. Reiss's very experienced hands, the total EDA preparation time, including rubber dam placement, was about seven minutes. Operators using the technique less frequently would probably require more time than Dr. Reiss's seven minutes, however.

Following the induction period, Dr. Reiss tested the effectiveness of the EDA procedure with gentle probing, and proceeded with the periodontal scaling. The patient appeared quite comfortable throughout the treatment. Still, as Dr. Reiss is the first to admit, the success rate of EDA varies. "EDA isn't for everyone, but I do offer it as an alternative to all my patients. It's one more piece of pain control armamentarium at our disposal."

Malamed et al, in *Anesth Prog* 36:192-100, 1989, reported an overall success rate of 85% for shallow to moderate restorative procedures, and 59.5% for deep procedures. Maxillary anterior teeth showed the highest success rate — up to 90%. Mandibular molars registered between 65% and 71.4%. Similar results were reported by Hochman, *JADA*, Vol. 116, February 1988; while Quarnstrom and Milgrom, in *Anesth Prog* 36:66-69, 1989, showed that by combining TENS with nitrous oxide their success rate of anaesthesia for restorative den-

tistry could be raised to 83% as compared to 55% with TENS alone.

Patient Selection and Rapport

EDA is not an exact science — much depends upon patient selection and rapport. Dr. George Hashim, in the June 1987 *Journal Of the California Dental Association*, lists five patient types in descending order related to EDA success: the philosopher, the stoic, the mildly fearful, the needle-phobic, and the hysterical. He states, "by having an understanding of the psychological variables which profoundly affect patients' behavior, the clinician who is experienced in electronic anaesthesia techniques will be able to provide, for many of their patients, effective pain control. . ."

To test the effectiveness of EDA, the *Journal* editor volunteered for an EDA demonstration. Instructions, the "hook-up" in the maxillary anterior region, and the five-minute induction period required less than 10 minutes. No pain was felt when Dr. Reiss probed labial and lingual soft tissue. A skeptical editor took the scaler into his own hand and buried it into lingual soft tissue until encountering bone. No pain. (But perhaps no sense either!)

Several dentists known to be using EDA were contacted by the *Journal* for comment. Dr. Brian Piercy, of Stonewall, Manitoba, said he purchased **H-Wave** for the obvious reason — anaesthesia without a needle. He indicated initial success with careful patient selection, but has since abandoned the technique. Asked why, he responded, "Time — it was fine when I first started practice and could afford to instruct and orientate patients. Now that I am much busier it is too time consuming."

Special Patient Conditions

Dr. Olva Odum, the head of community dentistry at the Faculty of Dentistry in Manitoba, has a hospital-based practice and finds EDA particularly useful as an anaesthetic option for special patient conditions. Candidates for the technique include patients with chronic renal failures or who are undergoing haemodialysis; or patients with liver damage, blood dyscrasia or immunosuppressed states — situations where there could be problems metabolising local anaesthesia.

Dr. Odum also emphasized the time factor — the EDA patient must be made aware of what to expect — and remarked on the high degree of trust necessary between patient and operator. Asked if

she would use the system for a patient who was 'afraid of the needle' she replied, "Certainly, it is effective with the properly selected and trained patient. But the patient must be prepared to invest the time and the cost in accepting this very different modality."

TMJ Success

Dr. Gerry Ross of Tottenham, Ontario, has been using EDA for almost two years. "About a third of my practice is referred TMJ and it is in this area that I have my greatest success," he said. Dr. Ross also uses the system for selected restorative treatment in the anterior region — bicuspid to bicuspid — where it is effective more than 90% of the time.

The hygienist in Dr. Ross's office has a special list of patients where EDA is used for scaling and root planing. "In most cases," says Dr. Ross, "when the patients are asked if they want EDA again, the answer is positive."

Although not particularly promoting EDA, Dr. Ross's office does offer suitable literature in the reception area. Like others, he indicates the main disadvantage of EDA is the time factor. "If it wasn't for dental auxiliaries being able to monitor the system after I place the induction pads, I couldn't afford to use EDA routinely," he said.

Electronic dental anaesthesia's future is difficult to plot. Although the theory and various mechanisms have been around for many years, EDA is still not an established regimen in the average dental office. There is no doubt it has a role to play in determining patient comfort, but the dentist contemplating EDA should do so with caution. A thorough review of the literature is mandatory, seeking out a suitable continuing education course strongly suggested, and getting advice (pro and con) from experienced operators is highly recommended. △



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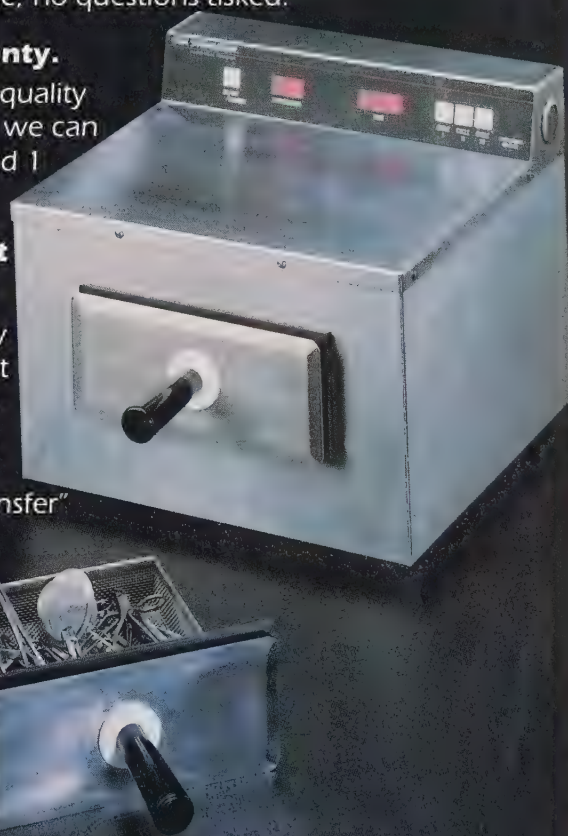
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A Study of the Reasons For Tooth Extraction in a Canadian Population Sample

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ABSTRACT

The reasons for extraction of teeth were determined in a Canadian population sample of 909 patients, ranging in age from 14 to 91 years. Caries was the primary cause of extraction (63%), followed by periodontitis (34%). For the adult age groups, the percentages were approximately the same. While periodontitis was the cause of one-third of the extractions, these occurred in only one-fifth of the population. Although there is a commonly expressed belief that periodontitis is the major cause of tooth loss in adults, a review of both historical and contemporary literature does not support this position. According to the current concept of the natural history of periodontal disease, only about one-fifth of the population, or less, is likely to have periodontitis severe enough to cause tooth loss. This view is consistent with data from this and most other studies on the reasons for tooth extraction.

SOMMAIRE

On a cherché à déterminer les raisons pour lesquelles les gens se font extraire des dents en effectuant une étude auprès de 909 patients âgés de 14 à 91 ans. La principale cause des extractions est la carie (63 %), suivie par la parodontite (34 %). Chez les adultes, ces pourcentages sont sensiblement les mêmes. La parodontite y est responsable du tiers des extractions, mais touche seulement une personne sur cinq. On croit communément que la parodontite est la principale cause des pertes dentaires chez les adultes et, pourtant, les publications passées et actuelles sur le sujet démentent cette croyance. D'après l'idée qu'on se fait actuellement de l'évolution de la parodontite, seulement une personne sur cinq, ou moins, est susceptible d'en avoir une assez grave pour perdre des dents. Cette idée est conforme aux données de la présente étude et de la plupart des études sur les causes des extractions dentaires.

Caries and periodontitis are unquestionably the major reasons for tooth loss in Western countries, although prosthetic treatment, as a consequence of these diseases, is also a significant, if variable, factor. All other causes are minor. In terms of the relative role of the two principal diseases, there is a widely held belief that while caries is the dominant cause in the young patient, periodontal disease is the major cause of extractions in adults.¹⁻⁴ This belief has been published for years in standard periodontal textbooks,⁵⁻⁸ supported mainly by reference to early American studies⁹⁻¹⁴ on the reasons for tooth extraction. However, much of the contemporary periodical literature¹⁵⁻²³ and current editions of some textbooks^{24,25} have questioned this tenet on the basis of data from more recent international studies. This study will report data on the reasons for extraction in a Canadian population sample. In addition, we will review critically the foundation reference literature on which the assumed role of periodontitis as the primary cause of extraction in adults has been based.

Method

The study population of 909 was comprised of 376 females and 533 males. The age range was 14-91 years with a mean age of 43 years. Most of these individuals were referred from the teaching clinics of the Faculty of Dentistry at The University of Western Ontario, although some were from private practitioners. All extractions were performed in the Division of Oral Surgery of the Faculty. The reasons for extraction (caries, periodontitis, other) were determined after evaluation of radiographs, examination findings, consultants' reports and from entries recorded in the treatment chart at the time of extraction. In patients with multiple extractions where both diseases were present, the reason for each tooth extraction was determined from the records as noted above. Deciduous teeth and unerupted/partially erupted third molars were excluded from the data.

Review of the Literature

A survey of articles on the major causes of tooth extraction from North American

TABLE I

Percent * tooth loss from caries and periodontitis for all age groups

Authors		Caries	Periodontitis
BREKHUS ⁹	(U.S. 1929)	51.4	32.2
ALLEN ¹⁰	(U.S. 1944)	48.8	40.7
KROGH ¹²	(U.S. 1958)	39.7	20.2
ANDREWS and KROGH ¹³	(U.S. 1961)	38.3	36.0
GREWE ET AL ¹⁴	(U.S. 1966)	30.2	23.6
TROTT and CROSS ³⁴	(Can. 1966)	61.0	21.7
LUNDQVIST ²⁸	(Swed 1967)	47.2	11.4
BARCLAY ²⁶	(N.Z. 1974)	51.4	10.4
AINAMO et al ¹⁸	(Fin. 1984)	60.4	18.3
CAHEN et al ²⁹	(Fr. 1985)	49.0	32.4
KAY and BLINKHORN ⁷²⁷	(U.K. 1986)	50.0	21.0
BOUMA et al ¹⁶	(Neth 1987)	57.2	13.3
AGERHOLM and SIDI ²⁰	(U.K. 1988)	47.5	26.5
CHAUNCEY et al ¹⁵	(U.S. 1989)	33.3	18.7

* The percentages for caries and periodontitis do not total 100%. The balance is accounted for by extractions for other reasons, especially those of prosthetics and orthodontics.

and European literature between 1929 and 1989 is presented in **Table I**. Prior to 1966, such studies originated in the United States. Subsequently, the literature is composed of reports from many Western countries. The sample populations originate from a variety of sources and socio-economic groups, so a straightforward comparison of results requires caution. In spite of this, it is quite clear that for total samples of all age groups, caries is the dominant cause of tooth loss. However, most studies included large numbers of children and juveniles for whom practically all extractions were the result of caries or orthodontic treatment, with periodontitis a negligible factor. Where the original data permitted, the percentages of tooth loss in adults from caries and periodontitis is shown in **Table II**. Only in the report by Andrews and Krogh¹³ was periodontitis the major cause of tooth loss in adults. The widely held belief that "periodontal disease" is the predominant cause in adults over

35-40 years is primarily based upon data from the early American literature^{9-11,13,14} with some support from studies in other Western countries.^{26,27} Several studies have shown that caries and periodontitis are equally responsible for tooth loss in older adults.^{12,28,29} In a recent study from England and Wales, it was reported that extractions due to periodontitis exceeded those for caries only in patients over 60 years of age.²⁰

Results

In the total sample, caries was the reason for extraction of 63% of teeth; 34% were extracted for periodontitis (**Table III**). All other reasons accounted for the remaining 3%. In patients under 20 years, other causes, mainly orthodontics, accounted for 33% of extractions. For adults only (20 years or older), the results are almost identical because of the small number of juveniles in the sample. Periodontitis was a minor reason for extraction between 20-29 years (3%),

then increased between 30-39 years to 27%. For age groups over 40, caries and periodontitis were equally the cause of tooth loss, although there was a trend towards increased tooth loss from caries over the age of 70 years.

While periodontitis was the reason for 34% of extractions in the sample, this occurred in just 22% or slightly more than one-fifth of the patients; for patients over 40 years, slightly more than one-third of the sample accounted for extractions due to periodontitis (**Table IV**). The average number of teeth extracted per patient because of periodontitis was four, compared with an average of two for patients losing teeth from caries.

Discussion

Periodontal disease includes all diseases of the periodontium, of which the principal forms are gingivitis and adult periodontitis. There are no reliable data on the prevalence of prepubertal periodontitis or rapidly progressive periodontitis, and juvenile periodontitis with a prevalence of 0.1 to 0.4% is a negligible factor in tooth loss.³⁰ Since it includes gingivitis, use of the general term "periodontal disease" as a reason for extraction is inaccurate. For this reason, the term periodontitis has been used here to denote the destructive infection which causes tooth loss.

The belief that "periodontal disease" is the leading cause of tooth loss in adults has assumed the status of dogma. For example, it appears as a preface statement in the "Proceedings from a State of the Art Workshop" sponsored by the National Institutes of Dental Research and Health.⁴ The Canadian Dental Association and The American Academy of Periodontology repeat this belief in public education pamphlets.³¹⁻³³ Whenever this statement is made, the early American studies of Brekhuis (1926),⁹ Allen (1944),¹⁰ Pelton et al. (1954),¹¹ Andrews and Krogh (1961)¹³ and Grewe et al. (1966)¹⁴ have been used consistently as the basic scientific references.

The continuing use of these pioneer references as support for the belief in the primacy of periodontitis as a reason for extraction in adults suggested the need for a critical examination of the original studies. In his summary statement, Brekhuis⁹ combined pulp disease with periodontoclasia to account for 58% of extractions, with loss by caries amounting to 26%. In the overall sample, the loss of teeth to periodontoclasia alone was 33%. When pulp disease and caries are combined, as is the current practice, they account for 52% of extractions.

TABLE II

Percent tooth loss from caries and periodontitis in adults*

Study	Caries	Periodontitis
ALLEN (U.S. 1944) ¹⁰	45.6	46.4
KROGH (U.S. 1958) ¹²	40.1	24.3
ANDREWS and KROGH (U.S. 1961) ¹³	23.4	39.6
TROTT and CROSS (Can. 1966) ³⁴	57.8	34.5
GREWE et al (U.S. 1966) ¹⁴	29.5	27.1
LUNDQVIST (Sweden 1967) ²⁸	42.5	15.6
AINAMO et al (Finland 1984) ¹⁸	58.6	21.5
CAHEN et al (France 1984) ²⁹	52.2	36.3
CHAUNCEY et al (U.S. 1989) ¹⁵	33.3	18.7

* compiled from studies which reported numerical data for groups over 20 years of age.

TABLE III

Number and percentage of extractions by cause*

AGE GROUP	PATIENTS	TEETH	CARIES	PERIODONTITIS
< = 19	19	27	18 (67%)	0 (0%)
20-29	240	490	444 (91%)	15 (3%)
30-39	250	651	455 (70%)	178 (27%)
40-49	129	383	189 (49%)	190 (50%)
50-59	115	387	186 (48%)	198 (51%)
60-69	119	382	183 (48%)	190 (50%)
70-79	74	151	78 (52%)	70 (46%)
80+	20	39	22 (56%)	16 (41%)
TOTAL	966	2510	1575 (63%)	857 (34%)

* The percentages do not equal 100 by omission of extractions for other reasons, which, except for the juvenile group, numbered very few teeth.

Allen's¹⁰ study is one of the most widely quoted references, and yet the results in adults over 40 has questionable value since his sample of only 79 patients of this age is divided into four age groups and further divided by cause, leaving extremely small numbers in each subdivision. The largest number in any group is 17, with four of the 8 subdivisions having 5 or fewer patients. The study by Andrews and Krogh¹³ was intended to compare low and high socio-economic groups. In the low group, which was mostly indigent blacks with little evidence of dental care, periodontitis was shown to be the major cause in adults of all ages. In the high socio-economic group, a study published separately by Krogh,¹² caries was clearly the dominant cause for adults of all ages, although after age 40, caries and periodontitis were equal as causes until age 70, when caries again was dominant. Krogh's results are consistent with those in the contemporary literature. Curiously, only data from the low socio-economic group are used persistently to support the belief. Finally, Pelton and associates' study¹¹ is the source of the statement that after age 35, periodontal disease is the primary cause, although, except for a bar graph, remarkably there are no supporting data. Most contemporary U.S. and European studies have demonstrated that when patients of all ages are included, caries is by far the major cause of tooth loss and when adults of all ages are assessed, again caries is unquestionably the major cause (Tables I and II). Only for patients over 40 years of age does periodontitis in some studies assume an equal or rarely a dominant role.^{26,27,29} In our data (Table IV), caries is clearly the dominant reason for extraction in adults. For patients over 40, caries and periodontitis are equally responsible, until age 70, when caries again is the major cause. In our view, the continued use of these early studies as the principal scientific support for the belief that periodontitis is the major cause of tooth loss in adults, is not justified.

In reporting the first European study in 1967, Lundqvist²⁸ perceptively suggested that a more appropriate measure for comparing the role of caries and periodontitis might be a calculation of the proportion of patients affected by each cause of extraction. He found that 63% of patients had extractions for caries, while 10% lost teeth to periodontitis. In Allen's 1944 study, which is the most widely used reference in support of the dominant role of periodontitis, only 13% of patients had extractions for periodontitis. Trott and Cross in 1966,³⁴ reported that 12%

TABLE IV

Number and percent of patients losing teeth – by cause

AGE GROUP	CARIES	PERIODONTITIS	OTHER
< = 19	14 (74%)	0 (0%)	5 (26%)
20-29	210 (88%)	11 (5%)	19 (8%)
30-39	194 (78%)	40 (16%)	16 (6%)
40-49	90 (70%)	36 (28%)	3 (2%)
50-59	73 (63%)	39 (34%)	3 (3%)
60-69	70 (59%)	43 (36%)	6 (5%)
70-79	38 (51%)	33 (45%)	3 (4%)
80+	12 (60%)	7 (35%)	1 (5%)
TOTAL	701 (73%)	209 (22%)	56 (6%)

of the patients accounted for the extractions from periodontitis. In our data, (Table IV), 22% of patients lost teeth from periodontitis, Lundqvist's suggestion is very pertinent in terms of the current understanding of the natural history of periodontal disease. The traditional view is that of a universal disease progressing inevitably from gingivitis to periodontitis, which then slowly but continuously destroys supporting bone.^{4,5,35} The present concept³⁶⁻³⁸ holds that periodontitis is not the inevitable sequel of gingivitis, that it is not continuous but may be active, static or in remission and that only a small proportion of the population is susceptible to severe infection. Most studies show the proportion of advanced periodontitis to be less than 15%,³⁹⁻⁴² although some have reported a prevalence of approximately 25%.^{43,44} Using anthropologic data, Clarke and Hirsch⁴⁵ have proposed an intriguing hypothesis that this low prevalence has also been true in ancient populations. The current concept, that a relatively small percentage of the population is subject to severe periodontitis, would explain the fact that in both early and contemporary studies a small percentage of sample populations accounted for the extractions, however numerous, due to periodontitis.

Finally, a comment on one of the current suppositions about future treatment needs in the era of reduced carious destruction. It has been suggested that a concomitant increase in treatment requirements for periodontitis will occur because of increased life expectancy and vastly fewer extractions from caries.⁵ Alternatively, we join others^{46,47} who predict that with improved hygiene, as a consequence of both increased public health education and significantly fewer proximal restorations, there may well be less adult periodontitis, while the severe destructive type will remain at its historical level of 20% or less.

Conclusions

In this population sample, the principal cause of tooth loss was dental caries (63%). Periodontitis was the reason for extraction of 34% of teeth and all other reasons accounted for 3%. For adult patients, teeth lost from periodontitis occurred in slightly more than one-fifth of the population. Although after age 40, periodontitis was the cause of as many extractions as caries, these occurred in just over one-third of the patients. In view of overwhelming evidence in the current literature and indeed in some of the earlier studies, clearly periodontitis is *not* now the leading cause of the tooth extraction in adults in Western countries and may never have been. Δ

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Root surface caries prevalence and associated factors among adult patients in an acute care hospital

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ABSTRACT

There have been many studies reporting on the prevalence of root surface caries in elderly populations, but there is little consistency in these reports concerning the associated risk factors. In the present study, intraoral examinations were carried out on adult patients (age range 22 to 91 years, mean age 57.9) on the acute care wards of a teaching hospital. Of the 103 patients examined, 23.3% exhibited carious lesions on root surfaces, these lesions occurring more frequently in males than in females, and more frequently in the 60 years and older age groups. Forty-five per cent of all root lesions recorded were found on the buccal or facial root surfaces of teeth exhibiting root surface caries. Individuals exhibiting root surface caries had more surfaces with gingival recession and loss of attachment ≥ 3 mm, more retained roots, higher DMFT values, and less teeth. However, statistically significant relationships were not obtained between root surface caries and a) coronal caries, b) dental plaque, c) calculus, d) bleeding on probing, and e) probing depth ≥ 4 mm. Thirty-three strains of *Actinomyces viscosus* were isolated from plaque samples taken from root surface lesions compared to 21 strains isolated from intact root surfaces.

Key words: root surface caries, acute care hospital patients.

SOMMAIRE

De nombreuses études portent sur la prévalence des caries de surface radiculaire chez les gens âgés, mais peu s'entendent sur les risques associés à ces caries. Pour les besoins de la présente étude, on a fait un examen intra-buccal à 103 adultes qui étaient hospitalisés et âgés de 22 à 91 ans (âge moyen : 57,9 ans). Sur ce nombre, 23,3 % présentaient des lésions carieuses à la surface des racines, le nombre des lésions

étant plus élevé chez les hommes que chez les femmes ainsi que chez les 60 ans et plus. On a trouvé 45 % des lésions sur les surfaces radiculaires buccales et faciales des dents cariées. Les personnes avec des caries avaient des retraits gingivaux et des pertes d'attachement plus prononcées (≥ 3 mm), des racines plus contenues, des indices CAO plus élevés et moins de dents. Toutefois, on n'a relevé aucun rapport important entre les caries de surface radiculaire et (a) les caries de couronne, (b) la plaque dentaire, (c) le tartre, (d) les saignements lors des sondages, et (e) la profondeur des sondages (≥ 4 mm). On a isolé 33 souches d'*Actinomyces viscosus* dans la plaque prélevée sur des lésions de surface radiculaire comparativement à 21 souches dans celle des surfaces intactes.

Several review articles have been published concerning the epidemiology of root surface caries.^{1,2} The conclusions from these reviews involving a wide range of population groups seem to indicate a lack of consistency of reporting among the different studies. It has been shown that the occurrence of root surface caries increases with age and that the prevalence is higher in men.³ Studies relating root surface caries with periodontal status do not unequivocally verify or refute the belief that periodontal factors influence its frequency.⁴ It has been suggested that gingival recession is a prerequisite; however, a recent Finnish study has demonstrated only a weak relationship between root surface caries and the presence of gingival recession.⁵ Studies on the association between root surface caries and coronal decay have produced contradictory results. Beck et al.³ surveyed a group of elderly persons and found that 13% had root surface caries but no coronal decay. Burt et al.⁶ reported a correlation between caries experience on coronal tooth surfaces and root surface caries. Current epidemiological data exhibit deficiencies and include

contradictory evidence of the factors believed to be related to the occurrence of this disease. The only unequivocal evidence available concerns the age-dependent prevalence of root surface caries.

Current microbiology emphasizes wide species variation in root surface caries plaque flora with no direct association of any specific organism.⁷ *Actinomyces viscosus* has been strongly implicated as one of the etiologic agents.^{8,9} Although the cariogenic potential of this species is not universally accepted, Komiyama et al.^{10,11} have found that *A. viscosus* strains isolated from root caries lesions are aciduric, which would give this organism a considerable ecological advantage over other root surface plaque flora and subsequently result in root surface caries. Thus, it is hypothesized that *A. viscosus* may play an important role in the process.

In the present study, a comprehensive clinical and microbiological investigation assessing carious lesions on root surfaces was conducted in a group of acute care patients at the Royal University Hospital, Saskatoon, Saskatchewan. Specific aims were: to survey the prevalence and distribution of root surface caries in this population; to analyze the association of root surface caries with oral health indicators, oral hygiene factors and periodontal disease factors; and to isolate *A. viscosus* from root surface caries lesions and intact root surfaces, respectively.

Method

Patients: All patients with at least one remaining natural tooth, temporarily hospitalized on the medical wards of the University Hospital during the months of June, July and August 1988 and who signed a valid consent form were examined ($n = 103$). Individuals who were too ill, whose condition contraindicated gingival probing, or who had a poor medical prognosis were excluded. The participation rate was approximately 83%. The

majority of these patients had cardiac, gastrointestinal or urinary tract related disorders. Patients were examined seated in a chair, wheelchair or lying on the bed, as the case necessitated. Standard dental instruments and a fiber-optic portable light source were used for the examinations. This investigation had the approval of the University of Saskatchewan Advisory Committee on Ethics in Human Experimentation.

Hard tissue examinations: These were carried out by one examiner (RM), and included recording the presence or absence of teeth, retained roots, presence of restorations and/or caries on coronal and exposed root surfaces. The teeth were not scaled prior to examination but dried with gauze squares when necessary. Coronal caries were recorded using the W.H.O. 1987¹² criteria where only unequivocal detectable caries were scored and all uncertain diagnoses were excluded. Root surface caries was recorded as present if: there was a discrete, well-defined and discoloured cavitation on the root surface; the explorer entered easily and displayed some resistance to withdrawal; and the lesion was located either at the cemento-enamel junction or was wholly on the root surface.¹³ All lesions adjacent to restorations or prosthetic crowns were recorded as secondary caries, and were excluded from the final analysis.

Periodontal examinations: These were performed by one examiner (JNH) using a William's probe with a diameter of 0.5 mm and a dental mirror. This examination included the following: clinical probing depths and loss of attachment measured on the buccal, mesial, lingual and distal surfaces of all teeth and recorded in millimeters; gingival recession measured from the cemento-enamel junction to the crest of the gingiva; bleeding on probing; and supragingival plaque and calculus recorded as present or absent. In addition, the patient's age and sex were noted.

Microbiological procedures:

- i) Plaque sampling: Plaque samples for the isolation of *A. viscosus* were obtained by scraping a sterile stainless steel curette across the root surface caries lesions. Plaque samples were also obtained from intact root surfaces of the contralateral control tooth. If this tooth was non-existent, plaque samples were obtained from the closest available tooth.
- ii) Isolation and identification of *A. viscosus*: For the isolation, CNAC-20 medium, a selective medium for *A. viscosus* was used. For identi-

cation, a series of biochemical tests and a combination catalase and serological tests were performed. The latter test included the immunofluorescence method for a more accurate identification of *A. viscosus* species. The rabbit antisera, anti-*A. viscosus* and anti-*A. Naeslundii*, were generously provided by Dr. E.D. Fillery and Mr. M. Firtel (Faculty of Dentistry, University of Toronto).

Statistical Analysis: Differences between the recorded clinical conditions and the non-root surface caries and root surface caries groups were evaluated using the two-tailed t-test.

Results

Characteristics of subjects

There were 57 males and 46 females included in the study of 103 dentate

patients (age range: 22 to 91 years, mean age: 57.9 years, SD = 17.6). Total number of teeth examined was 1,935, comprising 814 (42.1%) in the maxilla and 1,121 (57.9%) in the mandible, with a mean of 18.1 teeth per patient. Eleven subjects had a total of 53 retained roots and 75.7% had one or more root surfaces exhibiting gingival recession. The mean number of root surfaces affected was 12.9 (SD = 17.3).

Prevalence

The overall frequency of patients with teeth affected with root surface caries was 28% for males and 17.4% for females. The sex- and age-specific distribution of these patients is shown in Table I. Males accounted for 66.6% (n = 16) of the root lesions while females accounted for 33.3% (n = 8). Males over the age of 60 accounted for 54.2% of all

TABLE I

Age- and Sex-specific Distribution of Patients

Age	Patients With Surface Root Caries						Total Sample	
	Male		Female		Total		n	%
	n	%	n	%	n	%		
20-29	0	0.00	0	0.00	0	0.00	5	4.85
30-39	0	0.00	0	0.00	0	0.00	9	8.74
40-49	1	4.17	2	8.33	3	8.33	10	9.71
50-59	2	8.33	1	4.17	3	12.50	21	20.38
60-69	6	25.00	3	12.50	9	37.50	28	27.18
70-79	6	25.00	2	8.33	8	33.33	22	21.36
≥ 80	1	4.17	0	0.00	1	4.17	8	7.78
Totals	16	66.66	8	33.33	24	100.00	103	100.00

TABLE II

Dental Health Factors Associated With Root Surface Caries

Factor:	No Root Caries (n = 79)		Root Caries (n = 24)		p Value
	Mean	SD	Mean	SD	
Age	57.23	17.23	64.00	11.08	.025 < p ≤ .05
No teeth present	20.09	8.73	14.50	8.25	.0005 < p ≤ .005
DMFT*	18.77	7.24	21.54	6.23	.025 < p ≤ .05
DFS**	14.64	13.91	9.08	10.08	.025 < p ≤ .05
Coronal caries	.86	2.91	1.46	2.97	.1 < p ≤ .375
Retained Roots	.13	.82	1.46	3.97	.0005 < p ≤ .005
Surfaces with recession	8.61	10.99	13.04	9.14	.025 < p ≤ .05

* Decayed, missing and filled teeth

** Decayed and filled surfaces

TABLE III

Oral Hygiene Factors Associated With Root Surface Caries

Factor:	No Root Caries (n = 79)		Root Caries (n = 24)		p Value
	Mean	SD	Mean	SD	
Plaque	12.65	8.29	11.58	6.65	.1 < p ≤ .375
Calculus	7.22	5.97	7.75	5.46	.1 < p ≤ .375
Bleeding on probing	5.07	7.42	4.75	5.51	p > .4

TABLE IV

Periodontal Disease Indicators

Surface with:	No Root Caries (n = 79)		Root Caries (n = 24)		p Value
	Mean	SD	Mean	SD	
Loss of attachment ≥ 3mm	8.00	10.59	12.08	9.64	.025 < p ≤ .05
Probing depth ≥ 4mm	1.52	5.66	2.46	8.11	.1 < p ≤ .375

root surface caries found in this cohort of patients. The occurrence of root surface caries increased with age and was more common in men. The age range was 41 to 81 years (mean = 64, SD = 10.9).

Location and intraoral distribution

Proportionately more anterior teeth were retained by those subjects experiencing root surface caries, with 62% of these teeth being in the lower arch and 57% in the anterior segment. The teeth with the highest root surface caries attack rate were the mandibular cuspids, followed by the mandibular first premolars. The remaining root surface carious lesions were evenly distributed among the mandibular molars and those teeth present in the maxillary arch.

Root surface caries was observed predominantly on the buccal surfaces and least on the lingual surfaces. Overall, mandibular teeth were the most often affected. In men, 2.6% and in women, 1.0% of the teeth present in the lower jaw were affected. One or more root surfaces with untreated decay were found in 23.3% of the subjects. The mean number of decayed surfaces, in those exhibiting root surface caries, was 1.58 per person (SD = 0.99). The majority of teeth, (90.9%), were affected on one surface only. The distribution of root surface caries on different root surfaces was similar for both sexes.

The dental health factors associated with root surface caries are shown in Table II. The non-root surface caries

subjects had an average of 20.09 teeth present vs. 14.50 for the root surface caries (.0005 < p ≤ .005). The root surface caries-positive group were older, had more decayed, missing, and filled teeth (DMFT), more coronal caries, more retained roots and more tooth surfaces with gingival recession than the non-root surface caries group. All differences were statistically significant except in the case of coronal caries (.1 < p ≤ .375).

Table III provides information on the oral hygiene factors of plaque, calculus and bleeding on probing. None of these mean scores were found to be significant in this sample of patients.

Loss of attachment ≥ 3mm and pocket depth measurements ≥ 4mm for each tooth surface are shown in Table IV. The difference between the mean scores for the non-root surface caries and the root surface caries groups was found to be significant (.025 < p ≤ .05) for loss of attachment but no significant (.1 < p ≤ .375) when pocket probing depth was considered. While in the latter case the difference between the means would appear to be significant, the fact that deep pockets were not evenly distributed but concentrated in small numbers of patients accounts for the non-significant p value.

Microbiological findings to date show that from the 38 root surface carious lesions sampled, a total of 33 strains of *A. viscosus* were isolated while a total of 21 strains of *A. viscosus* were isolated from the intact root surfaces.

Discussion

The group surveyed was not presumed to be representative of the general adult population and the relatively small sample size must be taken into consideration when interpreting the data.

Root surface caries occurred more frequently among men than among women, and the possible explanation could be variations in oral health habits.⁵ The results also showed a highly significant relationship between the presence of root surface caries and the number of remaining natural teeth. Similar results were obtained in Finland⁵ and the United States.¹⁴ The latter study demonstrated that the occurrence of root surface caries had an inverse relationship with the number of teeth present, which factor predicted 25% of the variance in total Root Caries Index among the elderly. However, Burt et al.⁶ found no relationship between root surface caries and the number of teeth present at the time of examination.

The present study revealed a significant relationship between gingival recession and root surface caries, confirming previous reports. Gingival recession has been considered a prerequisite for root surface caries. Root surfaces exposed consequent to gingival recession have been regarded as the only surfaces at risk.¹⁵ However, this view excludes root surfaces situated in deep periodontal pockets or beneath highly fibromatous or edematous gingiva, in which case recession cannot be easily recorded.⁶ The Finnish study, in which a large number (n = 5,028) of adults was sampled for root surface caries,⁵ indicated only a weak correlation for this factor. This author concluded that gingival recession is an inadequate starting point when surfaces at risk are determined.

As stated in the results, the 103 subjects had a total of 1,935 teeth present, with a mean of 18.1 per subject. This is a high number of retained teeth. However, the age range of the study group was from 22 to 91 years, and the inclusion of the younger age groups would account for this figure. No attempt was made to make this a geriatric survey. The younger patients were included in order to examine the relation between root surface caries and those factors earlier stated, such as gingival recession. Periodontal disease does not have a sudden onset at age 65 nor does root surface caries. Table I indicates that three subjects in the 40 to 49 age group and three in the 50 to 59 age group had teeth with root surface caries. These findings need to be considered.

The types of teeth found in the total sample population were typical of those

found in most population groups. There were 814 teeth in the maxillas and 1,121 in the mandibles of the subjects. For those patients who exhibited root surface caries, the pattern of tooth retention was proportionately similar, with 133 maxillary teeth and 196 mandibular teeth present.

Epidemiological data indicate an association between coronal caries and root surface caries.^{16,17} The present investigation did not demonstrate a higher prevalence of coronal caries in teeth exhibiting root surface caries than in teeth without root surface caries. However, when the filled component of the decayed and filled surfaces index was included, the relationship was significant ($.025 < p \leq .05$). There were more filled surfaces in the non-root surface caries group. No significant relationships were found for the oral hygiene factors of plaque, calculus or bleeding on probing.

Glycogen metabolism and/or aciduricity of certain plaque organisms have been considered as important biochemical determinants of their cariogenic potential.^{18,19} In this respect, Komiyama et al.^{10,11} have initiated studies to explore the possible association between these biochemical determinants and root surface caries, by comparing *A. viscosus* of root surface caries and non-caries origin. An important finding in these studies was that *A. viscosus* isolated from root surface carious lesions consistently synthesized much higher amounts of glycogen and depleted this stored polymer for an extended period of time with acid production at even acidic pH levels. Thus, it is hypothesized that the ability of *A. viscosus* to synthesize large amounts of glycogen and to degrade this polymer for an extended period of acid production, particularly in an acidic environment, may play an important role in the process of root surface caries. The present paper reports only the total number of *A. viscosus* strains isolated from root caries lesions and from intact root surfaces. Additional studies are currently being conducted to further investigate the glycogen metabolism of these fresh isolates and will be reported subsequently.

Since the data were obtained from a cross-sectional study, the factors identified as likely to influence the occurrence of root surface caries should be regarded as correlates rather than risk factors.¹⁶ Δ

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Toronto, Ontario M4R 2E4

August 24-28, 1991
Canadian Dental Association Annual
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September 27-30, 1991: 13th Congress of the
International Association of Dentistry for Children.
Kyoto, Japan. For information contact the Secretariat,
13th Congress of the International Association of Den-
tistry for Children, c/o Japan Convention Services, Inc.,
Sumitomo Seimei Midouji Bldg., 4-14-3, Nishitemma,
Kita-ku, Osaka 530, Japan.

September 29-30: American Board of Oral and
Maxillofacial Radiology 1991 Certifying Exam in
Seattle. Application deadline: March 1, 1991. Contact:
Dr. A. Ruprecht, University of Iowa, College of
Dentistry, DSB-356, Iowa City, IA 52242-0101. Tel
(319) 335-7341.

October/Octobre 1991

October 2-5: American Academy of Periodontology.
Contact: Barbara Mueller Connell, 211 E Chicago Ave,
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October 3-5: American Academy of Gold Foil
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(604) 873-5191.

October 4: 5th Annual Bernard Jankelson Memorial
Lecture in Seattle, WA. For details contact: ICCMO
International Headquarters, 830 Marsh & McLennan
Bldg, Seattle WA 98101. Tel: (206) 623-8418.

October 7-13: Fédération Dentaire Internationale
in Milan, Italy. For information, contact: Janice Edgar,
c/o Canadian Dental Association, 1815 Alta Vista Dr,
Ottawa, Ont. K1G 3Y6 (613) 523-1770.

October 9-13: American Society of Dentistry for
Children. Contact: Carol Teuscher, 211 E Chicago Ave,
Suite 1430, Chicago, IL 60611, USA. (312) 943-1244.

October 26-28: 17th General Meeting of the
Japanese Association for Dental Science in Osaka.
Contact: Japan Dental Association, 4-1-20 Kudan-kita,
Chiyoda-ku, Tokyo 102, Japan.

July/Juillet 1991

July 1-3: Bermuda Dental Association Convention.
For pre-registration and group travel arrangements,
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London, Ont. N6G 1T4. Tel: (519) 657-3368.

July 4-6: Annual Conference of the British Dental
Association in Manchester. Contact: British Dental
Association, Conference Office, 64 Wimpole St, London
W1M 8AL, England. Tel: (071) 935-0875. Fax: (071)
487-5232.

July 12-17: Academy of General Dentistry. Contact:
Ms. Debbie Jepsen, 211 E Chicago Ave, Suite 1200,
Chicago, IL 60611, USA.

July 14-16: 12th International Conference on Oral
Biology in Athens, Greece. Contact: International
Association for Dental Research, 1111-14th St NW,
Suite 1000, Washington, DC 20005, USA. Fax (202)
789-1033.

August/Août 1991

August 2-4: 7th Annual ACOI Symposium in
Dearborn, Michigan. Contact: Margaret Jackson,
The International Congress of Oral Implantologists,
248 Lorraine Ave, Upper Montclair, NJ 07043, USA.
Tel: (201) 783-6300.

August 8-11: American Academy of Esthetic Den-
tistry in Santa Barbara, CA. Contact: Ms. Cheryl Kraus,
211 E Chicago Ave, Suite 948, Chicago, IL 60611, USA.
(312) 664-2122.

September/Septembre 1991

September 7-8: 7th International Congress of Inter-
national College of Cranio-Mandibular Orthopedics
in Osaka, Japan. For information: ICCMO International

Headquarters, 830 Marsh & McLennan Bldg, Seattle
WA 98101. Tel: (206) 623-8418.

September 12-15: International Association for
Orthodontics. Contact: Joanna Carey, 211 E Chicago
Ave, Suite 915, Chicago, IL 60611, USA. (312)
642-2602.

September 25-29: American Association of Oral &
Maxillofacial Surgeons in Chicago. Contact: Lisa
Sykes, 9700 W Bryn Mawr Ave, Rosemont, IL 60018,
USA. (708) 678-6200.

September 26-28: 3rd Asian Academy of Cranio-
mandibular Disorders in Singapore. Contact: Asian
Academy of Craniomandibular Disorders, c/o 268 Orchard
Rd, 5th floor, Singapore 0923. Fax: (65) 7321979.

November/Novembre 1991

November 27-30: XIIth International Dental Film
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February 15, 1991. Enquiries: Dr. M. Dolovici, XIIèmes
Journées 1991, 92 av. de Wagram, Paris, France.
33 1 42.27.89.00.

November 30-December 5: Greater New York Dental
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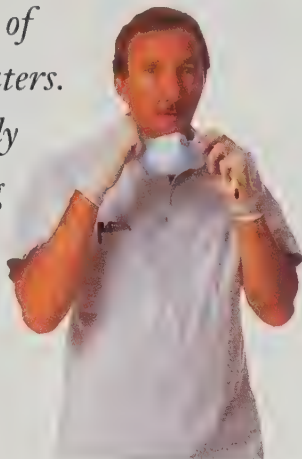
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ALBERTA—Red Deer: ASSOCIATE REQUIRED. A quality-oriented dentist is sought by this busy, well-established practice. Excellent opportunity to deliver a full range of dental services exists in this fully-equipped, well-staffed office. Buy-in opportunity for the right person. Present associate leaving for graduate school. Reply to Dr. Vinay Chafekar, 306-4822 Ross St, Red Deer, AB T4N 1X4 or phone (403) 347-5224 days or 346-4675 evenings. (5-13/7)

ONTARIO—North Toronto: Position available immediately or a paediatric dentist with Ontario certification in a modern, well-established private practice. Full range of dental care provided from preventive to orthodontic services; well care and special needs (mentally and physically compromised) children and adolescents. Associateship with future prospects for partnership or cost-sharing arrangement. Please reply to CDA Box 2426. (08-06/13)

ONTARIO—Oakville: Associateship with opportunity for future partnership. Available in modern two-dentist (male and female), two-hygienist family practice.

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ONTARIO—Windsor: Full-time associate needed who is willing to work evening hours. Able to perform molar root canal and oral surgery procedures in a modern general practice. Future buy-in or purchase of this office is possible. Call (519) 974-6120 or 979-1371 and ask for Gabe. (5-16/13)

NEW BRUNSWICK—Moncton: Associate required immediately for progressive, preventive practice. Excellent working conditions. Mall location. Buy-in negotiable after trial period. Available immediately. Please call (506) 859-0020 or 854-0236 and ask for Stella. (6-8/8)

NOVA SCOTIA—Truro: Want to move home to Nova Scotia? Here's your opportunity! Female dentist with full-time hygienist seeking a full-time, ambitious associate with experience for a busy, family-oriented practice. Emphasis on preventive and advanced restorative dentistry. Please write CDA Box 2513. (5-9/7)

NEWFOUNDLAND: Associate Dentist. Wanted in established clinic in Newfoundland outport community. Currently only one full-time dentist serving 10,000. Outdoor lifestyle (fishing, hunting, cross country skiing and close by excellent downhill skiing.) Great opportunity for new graduate. Contact Dr. Rob Piedalue, Baie Verte Health Ctre, Baie Verte, NF A0K 1B0 (709) 532-8014. (5-20/7)

Auxiliaries

NEWFOUNDLAND: Restorative Hygienist Wanted: Established clinic in Newfoundland outport community serving peninsula of 10,000. Outdoor lifestyle (fishing, hunting, cross country skiing and only 2½ hours from excellent downhill skiing). Excellent salary, benefits package. Contact Dr. Rob Piedalue, Baie Verte Health Centre, Baie Verte, NF A0K 1B0 (709) 532-8014. (5-4/7)

Opportunities Wanted

BRITISH COLUMBIA—Vancouver Area: Experienced dentist seeking asso-

ciateship for Saturdays in busy practice. Please reply to CDA Box 2515. (6-1/7)

MANITOBA: Experienced dentist seeking locum, associateship or purchase in Winnipeg or surrounding rural area. Please reply in confidence to CDA Box 2516. (5-17/6)

Opportunities Available

BRITISH COLUMBIA: Female dentist looking for a partner to share expenses in one-year-old computerized office in Delta (35 minutes from Vancouver). I am sharing 3200 sq ft with 3 family physicians, with approximately 1600 sq ft allocated to the operatories and a fourth plumbed with cabinets. There is also a consultation room. I am specifically looking for someone to split the cost of rent, cabinets and equipment. I would like to work only three days per week. I do not work on Saturdays or evenings. The rapidly growing high density area provides for excellent new patient flow and referrals. I would also be happy to pass on any patients I cannot accommodate. For more information, please call Dr. Susan Braun at (604) 590-9310 (O) or (604) 596-3072 (H). (3-5/4)

BRITISH COLUMBIA—Richmond: LOCUM REQUIRED while dentist on leave from July 1 to December 1, 1991. It is a busy, well-established general practice (75% adults). The staff is well-trained and capable of managing the practice. Phone (604) 270-7504 or (604) 271-4312 evenings and weekends or write to PO Box 94-513, Richmond, BC V6Y 2V6. (5-11/6)

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SASKATCHEWAN: NEED AN ASSOCIATE? Experienced dentist with new equipment for two ops desires cost sharing or associate position in Western Canada. Please reply to CDA Box 2510. (3-21/13)

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ONTARIO: WANTED Used/Almost New/ Good Equipment, Tools and Cabinets. If you are moving or just want to sell an item — Call Us — We may need what you have. Call Jamie (519) 973-1746 or fax (519) 973-1108. (6-4/6)

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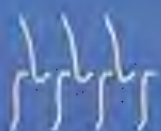
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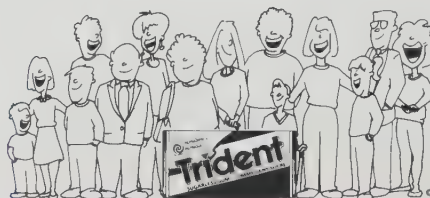
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